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ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 1997

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HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

HOUSE OF REPRESENTATIVES

ONE HUNDRED FOURTH CONGRESS

SECOND SESSION

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

JOHN T. MYERS, Indiana, *Chairman*

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JOE KNOLLENBERG, Michigan
FRANK RIGGS, California
RODNEY P. FRELINGHUYSEN, New Jersey
JIM BUNN, Oregon
TOM BEVILL, Alabama
VIC FAZIO, California
JIM CHAPMAN, Texas

NOTE: Under Committee Rules, Mr. Livingston, as Chairman of the Full Committee, and Mr. Obey, as Ranking Minority Member of the Full Committee, are authorized to sit as Members of all Subcommittees.

JAMES D. OGSBURY, BOB SCHMIDT, JEANNE WILSON, and DONALD M. MCKINNON, *Staff Assistants*

PART 2

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
BUDGET JUSTIFICATIONS AND STATUS REPORTS OF DIVISION ENGINEERS AND DIRECTOR OF CIVIL WORKS

Printed for the use of the Committee on Appropriations

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DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS

LOWER MISSISSIPPI VALLEY DIVISION

MISSISSIPPI RIVER COMMISSION

COMPLETE STATEMENT

OF

BRIGADIER GENERAL ROBERT B. FLOWERS

COMMANDER, LOWER MISSISSIPPI VALLEY DIVISION
AND
PRESIDENT DESIGNEE, MISSISSIPPI RIVER COMMISSION

BEFORE THE

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

COMMITTEE ON APPROPRIATIONS

UNITED STATES HOUSE OF REPRESENTATIVES

ON THE

FISCAL YEAR 1997 CIVIL WORKS BUDGET

MARCH 21, 1996

STATUS REPORT

REPORT OF BRIGADIER GENERAL ROBERT B. FLOWERS, COMMANDER, LOWER MISSISSIPPI VALLEY DIVISION AND PRESIDENT DESIGNEE, MISSISSIPPI RIVER COMMISSION.

AREA OF RESPONSIBILITY

OUR AREA OF RESPONSIBILITY ENCOMPASSES NEARLY 1,300 MILES ALONG THE MISSISSIPPI RIVER FROM NEAR HANNIBAL, MISSOURI, TO THE GULF OF MEXICO. THIS AREA INCLUDES ALL OR PORTIONS OF SEVEN STATES, 30 CONGRESSIONAL DISTRICTS, AND A POPULATION OF 16 MILLION PEOPLE. INCLUDED ARE FOUR DISTRICT OFFICES HEADQUARTERED IN ST. LOUIS, MISSOURI; MEMPHIS, TENNESSEE; VICKSBURG, MISSISSIPPI; AND NEW ORLEANS, LOUISIANA. IN ADDITION TO BEING DIVISION ENGINEER OF THE LOWER MISSISSIPPI VALLEY DIVISION, I AM ALSO PRESIDENT DESIGNEE OF THE MISSISSIPPI RIVER COMMISSION WHICH HAS CIVIL WORKS RESPONSIBILITY FOR THE MISSISSIPPI RIVER AND TRIBUTARIES PROJECT LOCATED IN THE ALLUVIAL VALLEY OF THE MISSISSIPPI RIVER FROM NEAR CAPE GIRARDEAU, MISSOURI, TO THE GULF OF MEXICO. HEADQUARTERS OF THE LOWER MISSISSIPPI VALLEY DIVISION AND THE MISSISSIPPI RIVER COMMISSION ARE COLLOCATED IN VICKSBURG, MISSISSIPPI.

THE MISSISSIPPI RIVER AND TRIBUTARIES PROJECT PROVIDES A COMPREHENSIVE FLOOD CONTROL AND NAVIGATION SYSTEM CONSISTING OF 3,417 MILES OF LEVEES AND FLOODWALLS, AS WELL AS DIKES,

REVETMENTS, AND OTHER FEATURES. THIS SYSTEM IS INTERSTATE IN CHARACTER. FOR EXAMPLE, FLOOD PROTECTION IN LOUISIANA IS DIRECTLY DEPENDENT ON THE INTEGRITY OF THE SYSTEM IN ARKANSAS. SINCE 1928, THE NATION HAS INVESTED $9.3 BILLION IN THIS MONUMENTAL UNDERTAKING. THE RETURN TO THE AMERICAN PEOPLE HAS BEEN $174.8 BILLION JUST IN FLOOD DAMAGES PREVENTED. TOTAL PROJECT BENEFITS, INCLUDING REDUCED TRANSPORTATION COSTS RESULTING FROM NAVIGATION, ARE ESTIMATED AT $325.0 BILLION.

FISCAL YEAR 1995 PROGRAM PERFORMANCE

IN FISCAL YEAR 1995, MAJOR EMPHASIS WAS PLACED ON THE DEVELOPMENT AND EXECUTION OF REALISTIC AND ACHIEVABLE SCHEDULES. THIS EMPHASIS RESULTED IN MAJOR IMPROVEMENTS IN PROGRAM PERFORMANCE. WE EFFECTIVELY UTILIZED 98 PERCENT OF THE MISSISSIPPI RIVER AND TRIBUTARIES FUNDS SCHEDULED FOR EXPENDITURE AND 99 PERCENT OF OUR AVAILABLE OPERATIONS AND MAINTENANCE, GENERAL FUNDS. IN THE GENERAL INVESTIGATIONS AND CONSTRUCTION, GENERAL APPROPRIATIONS, WE EXPENDED 94 PERCENT AND 98 PERCENT, RESPECTIVELY, OF OUR SCHEDULED EXPENDITURES.

FISCAL YEAR 1996 PROGRAM MANAGEMENT

ALTHOUGH OUR PERFORMANCE IN FISCAL YEAR 1995 WAS MUCH IMPROVED, IMPROVEMENT WAS NOT WITHOUT COSTS. FUNDING REQUIREMENTS FOR CONTRACTS AWARDED IN LATE FISCAL YEAR 1995 IN

BOTH THE CONSTRUCTION, GENERAL AND MISSISSIPPI RIVER AND TRIBUTARIES APPROPRIATIONS, COMBINED WITH FEWER AVAILABLE FUNDS IN FISCAL YEAR 1996, HAVE RESULTED IN DEFERRAL OF CONTRACT AWARDS SCHEDULED FOR THE THIRD AND FOURTH QUARTERS OF FISCAL YEAR 1996.

FISCAL YEAR 1997 PROGRAM SUMMARY

THE FISCAL YEAR 1997 TOTAL PROGRAM REQUIREMENT FOR THE LOWER MISSISSIPPI VALLEY DIVISION AND THE MISSISSIPPI RIVER COMMISSION IS $553.1 MILLION IN NEW BUDGET AUTHORITY BEFORE ASSIGNMENT OF SAVINGS AND SLIPPAGE. THIS COMPARES TO $571.5 MILLION ALLOCATED FOR FISCAL YEAR 1996. THE CONSTRUCTION PROGRAM ACCOUNTS FOR $224.0 MILLION, OR ABOUT 40 CENTS OF EACH DOLLAR; OPERATIONS AND MAINTENANCE OF EXISTING PROJECTS ACCOUNT FOR $319.4 MILLION, OR ABOUT 58 CENTS OF EACH DOLLAR; AND GENERAL INVESTIGATIONS FOR POTENTIAL PROJECTS ACCOUNT FOR $9.7 MILLION, OR ABOUT 2 CENTS OF EACH DOLLAR.

LOWER MISSISSIPPI VALLEY DIVISION PROGRAM

FIRST, I WILL DISCUSS THE LOWER MISSISSIPPI VALLEY DIVISION PROGRAM WHICH TOTALS $242.8 MILLION FOR FISCAL YEAR 1997.

GENERAL INVESTIGATIONS

OUR FISCAL YEAR 1997 REQUEST FOR THE GENERAL INVESTIGATIONS PROGRAM IS $6.8 MILLION. THESE FUNDS WILL PROVIDE FOR CONTINUATION OF 2 NAVIGATION STUDIES, 12 FLOOD DAMAGE PREVENTION STUDIES, 4 PRECONSTRUCTION ENGINEERING AND DESIGN PROJECTS, AND COMPLETION OF 1 PRECONSTRUCTION ENGINEERING AND DESIGN PROJECT. I WILL BRIEFLY COVER THESE STUDIES AND PROJECTS.

SURVEYS

INTRACOASTAL WATERWAY LOCKS, LOUISIANA

THE RECONNAISSANCE PHASE OF STUDY FOR THE INTRACOASTAL WATERWAY LOCKS WAS COMPLETED IN FISCAL YEAR 1995 AND INDICATED A REQUIREMENT TO REPLACE THE BAYOU SORREL LOCK. FISCAL YEAR 1996 FUNDS ARE BEING USED TO CONTINUE THE FEASIBILITY PHASE OF STUDY. FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE THE FEASIBILITY PHASE.

MISSISSIPPI RIVER SHIP CHANNEL IMPROVEMENTS, LOUISIANA

MAINTAINING AND IMPROVING THE EFFICIENCY AND COMPETITIVENESS OF DEEP-DRAFT NAVIGATION ON THE MISSISSIPPI RIVER BETWEEN BATON ROUGE, LOUISIANA, AND THE GULF OF MEXICO IS OF MAJOR IMPORTANCE TO OUR NATION'S ECONOMY. FISCAL YEAR 1996 FUNDS ARE BEING USED

TO INITIATE A RECONNAISSANCE STUDY FOCUSED ON POTENTIAL REDUCTIONS IN ANNUAL MAINTENANCE COSTS, ENVIRONMENTAL RESTORATION, AND INCREASED EFFICIENCY OF THE NAVIGATION FUNCTION. FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE THE RECONNAISSANCE STUDY.

MCKINNEY BAYOU, ARKANSAS

FLOODING OF URBAN AND AGRICULTURAL PROPERTIES CONTINUES WITHIN THE MCKINNEY BAYOU AREA LOCATED ADJACENT TO THE RED RIVER IN THE VICINITY OF TEXARKANA, ARKANSAS AND TEXAS. THE MOST RECENT FLOOD OCCURRED FROM MARCH TO APRIL 1989 AND RESULTED IN DAMAGES ESTIMATED AT $2.0 MILLION. FISCAL YEAR 1996 FUNDS ARE BEING USED TO INITIATE A RECONNAISSANCE STUDY OF FLOOD-RELATED NEEDS. FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO COMPLETE THE RECONNAISSANCE PHASE AND CONTINUE INTO THE FEASIBILITY PHASE OF STUDY.

ALEXANDER AND PULASKI COUNTIES, ILLINOIS

THE ALEXANDER AND PULASKI FLOOD CONTROL STUDY AREA INCLUDES PORTIONS OF THE SIX SOUTHERNMOST ILLINOIS COUNTIES. THE RECONNAISSANCE STUDY IDENTIFIED POTENTIAL SOLUTIONS TO THE DEGRADATION OF NATIONALLY SIGNIFICANT WETLANDS HABITAT. A FEASIBILITY COST-SHARING AGREEMENT WITH THE STATE OF ILLINOIS WAS EXECUTED IN NOVEMBER 1994. FISCAL YEAR 1996 FUNDS AND FUNDS

REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE THE FEASIBILITY PHASE.

BAYOU TIGRE, ERATH, LOUISIANA

OVERFLOW OF BAYOU TIGRE AND ITS TRIBUTARIES CAUSES DAMAGE TO HOMES, BUSINESSES, AND PUBLIC PROPERTIES IN ERATH, LOUISIANA, LOCATED 20 MILES SOUTH OF LAFAYETTE, LOUISIANA. FISCAL YEAR 1996 FUNDS ARE BEING USED TO COMPLETE THE RECONNAISSANCE PHASE IN SEPTEMBER 1996. FISCAL YEAR 1997 FUNDS WILL BE USED TO CONTINUE INTO THE FEASIBILITY PHASE.

BLACK BAYOU DIVERSION, LOUISIANA

THE BLACK BAYOU DIVERSION, LOUISIANA, RECONNAISSANCE STUDY TO ADDRESS FLOODING PROBLEMS AND ENVIRONMENTAL RESTORATION IN THE LOWER MERMENTAU RIVER BASIN WAS INITIATED IN FISCAL YEAR 1995. FISCAL YEAR 1996 FUNDS ARE BEING USED TO CONTINUE THE RECONNAISSANCE STUDY. FISCAL YEAR 1997 FUNDS WILL BE USED TO COMPLETE THE RECONNAISSANCE STUDY IN JANUARY 1997.

JEFFERSON PARISH, LOUISIANA

A FEASIBILITY STUDY ADDRESSING URBAN RAINFALL FLOODING IN JEFFERSON PARISH, LOUISIANA, IS UNDERWAY. FUNDS AVAILABLE IN

FISCAL YEAR 1996 AND REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE THE FEASIBILITY PHASE.

LAFAYETTE PARISH, LOUISIANA

A RECONNAISSANCE STUDY ADDRESSING POTENTIAL SOLUTIONS TO RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL FLOODING PROBLEMS IN THE VERMILION RIVER BASIN AREA OF LAFAYETTE PARISH, LOUISIANA, WAS INITIATED IN FISCAL YEAR 1994. FISCAL YEAR 1996 FUNDS ARE BEING USED TO CONTINUE INTO THE FEASIBILITY PHASE. FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE THE FEASIBILITY PHASE.

ORLEANS PARISH, LOUISIANA

A FEASIBILITY STUDY ADDRESSING URBAN RAINFALL FLOODING IN ORLEANS PARISH, LOUISIANA, IS UNDERWAY. FUNDS AVAILABLE IN FISCAL YEAR 1996 AND REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE THE FEASIBILITY PHASE.

ST. TAMMANY PARISH, LOUISIANA

A RECONNAISSANCE STUDY TO ADDRESS THE FLOODING PROBLEMS IN ST. TAMMANY PARISH, LOUISIANA, WAS INITIATED IN FISCAL YEAR 1995. FISCAL YEAR 1996 FUNDS ARE BEING USED TO COMPLETE THE RECONNAISSANCE PHASE. FISCAL YEAR 1997 FUNDS WILL BE USED TO CONTINUE INTO THE FEASIBILITY PHASE.

WEST SHORE-LAKE PONTCHARTRAIN, LOUISIANA

FUNDS PROVIDED IN FISCAL YEAR 1996 FOR THE WEST SHORE-LAKE PONTCHARTRAIN, LOUISIANA, STUDY ARE BEING USED TO INITIATE THE RECONNAISSANCE STUDY TO ADDRESS THE HURRICANE FLOODING PROBLEMS IN ST. CHARLES PARISH WEST OF THE BONNET CARRE' FLOODWAY IN ST. JOHN THE BAPTIST AND ST. JAMES PARISHES. FISCAL YEAR 1997 FUNDS WILL BE USED TO COMPLETE THE RECONNAISSANCE STUDY.

CHESTERFIELD, MISSOURI

THE RECONNAISSANCE STUDY FOR ST. LOUIS REGION, MISSOURI, HAS IDENTIFIED THE NEED FOR A SEPARATE FEASIBILITY STUDY TO ADDRESS FLOODING FROM THE MISSOURI RIVER ALONG THE MONARCH-CHESTERFIELD LEVEE SYSTEM. FISCAL YEAR 1996 FUNDS ARE BEING USED TO COMPLETE THE RECONNAISSANCE PHASE. FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE INTO THE FEASIBILITY PHASE.

FESTUS AND CRYSTAL CITY, MISSOURI

THE NEED FOR A SEPARATE FEASIBILITY STUDY TO ADDRESS FLOODING FROM THE MISSISSIPPI RIVER AND PLATTIN CREEK TO FESTUS AND CRYSTAL CITY, MISSOURI, WAS ALSO IDENTIFIED DURING THE RECONNAISSANCE STUDY FOR ST. LOUIS REGION, MISSOURI. FISCAL YEAR 1996 FUNDS ARE BEING USED TO COMPLETE THE RECONNAISSANCE

PHASE. FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE INTO THE FEASIBILITY PHASE.

LOWER RIVER DES PERES, MISSOURI

THE RECONNAISSANCE STUDY FOR ST. LOUIS REGION, MISSOURI, HAS IDENTIFIED THE NEED FOR A SEPARATE FEASIBILITY STUDY TO ADDRESS FLOODING FROM THE MISSISSIPPI RIVER AND RIVER DES PERES. FISCAL YEAR 1996 FUNDS ARE BEING USED TO COMPLETE THE RECONNAISSANCE PHASE. FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE INTO THE FEASIBILITY PHASE.

PRECONSTRUCTION ENGINEERING AND DESIGN

NUTWOOD DRAINAGE AND LEVEE DISTRICT, ILLINOIS

THE NUTWOOD DRAINAGE AND LEVEE DISTRICT, ILLINOIS, AUTHORIZED PROJECT PROVIDES FOR THE RAISING OF AN EXISTING LEVEE AND MODIFICATIONS FOR SEEPAGE CONTROL AND ADDITIONAL PUMPING CAPACITY ON THE EAST BANK OF THE ILLINOIS RIVER IN GREENE AND JERSEY COUNTIES, ILLINOIS. FISCAL YEAR 1996 FUNDS ARE BEING USED TO COMPLETE A RECONNAISSANCE STUDY TO DETERMINE IF THE AUTHORIZED PROJECT IS STILL ECONOMICALLY JUSTIFIED. IF CURRENT NEEDS CAN BE MET BY THE AUTHORIZED PROJECT, THE FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO RESUME PRECONSTRUCTION ENGINEERING AND DESIGN. IF THE RECONNAISSANCE STUDY DETERMINES THAT THERE IS A

JUSTIFIED ALTERNATIVE, THE FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE INTO A COST-SHARED FEASIBILITY STUDY.

COMITE RIVER, LOUISIANA

THE COMITE RIVER, LOUISIANA, PROJECT WAS AUTHORIZED FOR CONSTRUCTION BY THE WATER RESOURCES DEVELOPMENT ACT OF 1992. THE PROJECT PROVIDES FOR A 12-MILE DIVERSION CHANNEL FROM THE COMITE RIVER TO THE MISSISSIPPI RIVER WITH ASSOCIATED CONTROL STRUCTURES AND FISH AND WILDLIFE FEATURES. DIFFERING FIELD CONDITIONS AND MODEL STUDIES HAVE RESULTED IN DESIGN CHANGES. FISCAL YEAR 1996 FUNDS AND FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE PRECONSTRUCTION ENGINEERING AND DESIGN.

EAST BATON ROUGE PARISH, LOUISIANA

THE EAST BATON ROUGE PARISH, LOUISIANA, PROJECT WILL PROVIDE CHANNEL IMPROVEMENTS FOR FLOOD CONTROL ON BEAVER BAYOU, BLACKWATER BAYOU AND TRIBUTARIES, JONES CREEK AND TRIBUTARIES, WARD CREEK AND TRIBUTARIES, AND BAYOU FOUNTAIN. FISCAL YEAR 1996 FUNDS ARE BEING USED TO INITIATE PRECONSTRUCTION ENGINEERING AND DESIGN. THE FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE PRECONSTRUCTION ENGINEERING AND DESIGN.

WEST BANK - EAST OF HARVEY CANAL, LOUISIANA

THE WEST BANK - EAST OF HARVEY CANAL, LOUISIANA, PROJECT PROVIDES FOR MODIFICATIONS TO AN EXISTING PUMP STATION, RAISING EXISTING LEVEES, AND CONSTRUCTING NEW LEVEES, FLOODWALLS, AND FLOODGATES TO PROVIDE HURRICANE PROTECTION TO THE AREA EAST OF THE HARVEY CANAL IN JEFFERSON AND ORLEANS PARISHES. FISCAL YEAR 1996 FUNDS ARE BEING USED TO CONTINUE PRECONSTRUCTION ENGINEERING AND DESIGN. FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO COMPLETE PRECONSTRUCTION ENGINEERING AND DESIGN IN DECEMBER 1996.

JACKSON METROPOLITAN AREA, MISSISSIPPI

THE JACKSON METROPOLITAN AREA, MISSISSIPPI, PROJECT INCLUDES CONSTRUCTION OF A 33-MILE COMPREHENSIVE LEVEE SYSTEM THAT WOULD PROVIDE PROTECTION FROM PEARL RIVER FLOODING. FISCAL YEAR 1996 FUNDS WILL BE USED TO INITIATE PRECONSTRUCTION ENGINEERING AND DESIGN. FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE PRECONSTRUCTION ENGINEERING AND DESIGN.

CONSTRUCTION, GENERAL PROGRAM

TURNING NOW TO THE LOWER MISSISSIPPI VALLEY DIVISION CONSTRUCTION PROGRAM, OUR FISCAL YEAR 1997 TOTAL PROGRAM REQUIREMENT IS $50.1 MILLION, WHICH INCLUDES $3 MILLION FROM THE INLAND WATERWAYS TRUST FUND. THE FISCAL YEAR 1997 PROGRAM REFLECTS A DECREASE OF $22.7 MILLION FROM OUR FISCAL YEAR 1996 ALLOCATION. REQUIRED FUNDS WILL PROVIDE FOR CONTINUATION OF 18 PROJECTS.

MISSISSIPPI RIVER-GULF OUTLET, LOUISIANA

ON THE MISSISSIPPI RIVER-GULF OUTLET, LOUISIANA, PROJECT, WE CONTINUE TO PROGRESS IN OUR REEVALUATION STUDIES FOR THE REPLACEMENT OF THE INNER HARBOR NAVIGATION CANAL LOCK. STUDIES ARE FOCUSED ON A SITE IN THE INDUSTRIAL CANAL NORTH OF CLAIBORNE AVENUE WHICH HAS THE POTENTIAL FOR ACHIEVING SUPPORT OF STAKEHOLDERS. FISCAL YEAR 1996 FUNDS ARE BEING USED TO CONTINUE THE REEVALUATION STUDY AND TO INITIATE AND COMPLETE A FORESHORE PROTECTION CONTRACT. FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO COMPLETE THE REEVALUATION STUDY AND INITIATE DETAILED DESIGN FOR THE REPLACEMENT LOCK.

MISSISSIPPI RIVER SHIP CHANNEL, GULF TO BATON ROUGE, LOUISIANA

PHASES I AND II OF THE MISSISSIPPI RIVER SHIP CHANNEL PROJECT TO PROVIDE A 45-FOOT NAVIGATION CHANNEL FROM THE GULF TO BATON ROUGE, LOUISIANA, HAVE BEEN COMPLETED EXCEPT FOR THE MITIGATION FEATURES.

FISCAL YEAR 1996 FUNDS ARE BEING USED TO CONTINUE CONSTRUCTION OF THE PERMANENT SALTWATER INTRUSION MITIGATION FEATURES ASSOCIATED WITH PHASE I OF THE PROJECT AND INITIATE ENGINEERING AND DESIGN STUDIES TO EVALUATE IMPLEMENTATION OF PHASE III OF THE PROJECT WHICH WOULD INCLUDE ENLARGEMENT OF THE CHANNEL TO DEPTHS UP TO THE 55 FOOT AUTHORIZED DEPTH. FISCAL YEAR 1997 FUNDS WILL BE USED TO CONTINUE CONSTRUCTION OF THE PERMANENT SALTWATER INTRUSION MITIGATION FEATURES AND THE ENGINEERING AND DESIGN STUDIES FOR PHASE III OF THE PROJECT.

MISSISSIPPI RIVER BETWEEN THE OHIO AND MISSOURI RIVERS (REGULATING WORKS)

THE REGULATING WORKS PROJECT PROVIDES CHANNEL IMPROVEMENTS OF THE MISSISSIPPI RIVER FROM THE MOUTH OF THE OHIO RIVER TO THE MOUTH OF THE MISSOURI RIVER. THESE IMPROVEMENTS ARE CONSTRUCTED TO ENSURE A SAFE, DEPENDABLE NAVIGATION CHANNEL BETWEEN ST. LOUIS, MISSOURI, AND CAIRO, ILLINOIS. THE FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO COMPLETE ONE DIKE AND

REVETMENT CONTRACT AND TO INITIATE ANOTHER, AND TO CONTINUE ACQUISITION OF PERMANENT OPERATING EQUIPMENT.

MELVIN PRICE LOCK AND DAM, ILLINOIS AND MISSOURI

ON THE MELVIN PRICE LOCK AND DAM, ILLINOIS AND MISSOURI, PROJECT, A NEW 1200-FOOT LOCK WAS OPENED TO NAVIGATION IN FEBRUARY 1990. A 600-FOOT AUXILIARY LOCK WAS PLACED IN OPERATION IN OCTOBER 1994. FISCAL YEAR 1996 FUNDS ARE BEING USED TO INITIATE CONSTRUCTION OF A VISITOR CENTER, CONTINUE SEVERAL MISCELLANEOUS ITEMS, COMPLETE REPLACEMENT OF THE AUXILIARY CRANE AND REMOVAL OF THE INTERMEDIATE LOCK WALL AND DOWNSTREAM GUIDEWALL. THE FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE CONSTRUCTION OF THE VISITOR CENTER, INITIATE A CULTURAL RESOURCE CONTRACT, AND INITIATE AND COMPLETE AN AUTOMATED DATA ACQUISITION SYSTEM.

RED RIVER WATERWAY, MISSISSIPPI RIVER TO SHREVEPORT, LOUISIANA

ON THE RED RIVER WATERWAY, MISSISSIPPI RIVER TO SHREVEPORT, LOUISIANA, PROJECT, POOLS 4 AND 5 OF THE RED RIVER WATERWAY PROJECT WERE OPENED FOR LIMITED NAVIGATION ON DECEMBER 31, 1994. SINCE THEN THE CADDO-BOSSIER PORT HAS OPENED NEAR SHREVEPORT, LOUISIANA. THE ENTIRE WATERWAY WAS DEDICATED IN MAY 1995. REMAINING WORK CONSISTS OF CHANNEL TRAINING WORKS, MITIGATION, AND RECREATION. THE FISCAL YEAR 1997 REQUEST OF $4.8 MILLION

WILL ALLOW CONTINUATION OF ENGINEERING AND DESIGN FOR CHANNEL TRAINING WORKS IN POOLS 1 AND 2, THE ACQUISITION OF PERMANENT OPERATING EQUIPMENT IN POOLS 3, 4, AND 5, AND CONTINUATION OF MITIGATION LAND ACQUISITION AND RECREATION MASTER PLANNING TO INCLUDE A REGIONAL VISITOR CENTER.

REND LAKE, ILLINOIS

THE REND LAKE, ILLINOIS, PROJECT WILL CORRECT DESIGN DEFICIENCIES AT THE CASEY FORK AND BIG MUDDY SUBIMPOUNDMENT DAMS, THEREBY PREVENTING DESTRUCTION OF VALUABLE WILDLIFE AND WATERFOWL HABITAT. FISCAL YEAR 1996 FUNDS ARE BEING USED TO AWARD A CONTRACT FOR SHEET PILING TRANSPORTATION AND GATEWELL REPAIRS. FISCAL YEAR 1997 FUNDS WILL BE USED TO CONTINUE THIS CONTRACT.

EAST ST. LOUIS, ILLINOIS

THE EAST ST. LOUIS FLOOD PROTECTION, ILLINOIS, PROJECT PROVIDES PROTECTION FOR A NUMBER OF COMMUNITIES LOCATED IN AN 85,000 ACRE FLOODPLAIN. FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO INITIATE CONSTRUCTION OF SMALL GRAVITY DRAINS AND REHABILITATION OF THE EAST ST. LOUIS SEWER, INITIATE AND COMPLETE HARDING DITCH EXCAVATION AND HORSESHOE LAKE GRAVITY DRAINS, AND COMPLETE NORTH AND VENICE PUMP STATIONS.

ALOHA-RIGOLETTE, LOUISIANA

THE ALOHA-RIGOLETTE, LOUISIANA, PROJECT WILL PROVIDE ADDITIONAL FLOOD PROTECTION TO PRINCIPALLY AGRICULTURAL LANDS IN THE EXISTING ALOHA-RIGOLETTE LEVEED AREA. FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO INITIATE CONTRACTS FOR CHANNEL IMPROVEMENTS AND CONTINUE CONSTRUCTION OF THE BAYOU DARROW FLOODGATE AND THE BAYOU RIGOLETTE LOW FLOW STRUCTURE.

LAKE PONTCHARTRAIN, LOUISIANA, AND VICINITY

ON THE LAKE PONTCHARTRAIN AND VICINITY, LOUISIANA, HURRICANE PROTECTION PROJECT, LEVEE AND FLOODWALL WORK IN ORLEANS, JEFFERSON, ST. BERNARD, AND ST. CHARLES PARISHES IS CONTINUING. IN FISCAL YEAR 1996 WE WILL INITIATE FOUR CONTRACTS AND COMPLETE FIVE CONTRACTS. FISCAL YEAR 1997 FUNDS WILL BE USED TO CONTINUE CONSTRUCTION OF LEVEES, FLOODWALLS, AND MITIGATION.

LAROSE TO GOLDEN MEADOW, LOUISIANA

THE LAROSE TO GOLDEN MEADOW, LOUISIANA, PROJECT WILL PROVIDE HURRICANE PROTECTION TO DEVELOPED LAND ALONG BAYOU LAFOURCHE, LOUISIANA. IN FISCAL YEAR 1996 WE WILL COMPLETE ONE FIRST LIFT LEVEE CONTRACT AND ONE SECOND LIFT LEVEE CONTRACT AND CONTINUE ONE THIRD LIFT CONTRACT. FISCAL YEAR 1997 FUNDS WILL BE USED TO

AWARD ONE THIRD LIFT LEVEE CONTRACT AND COMPLETE ONE THIRD LIFT LEVEE CONTRACT.

NEW ORLEANS TO VENICE, LOUISIANA

THE NEW ORLEANS TO VENICE, LOUISIANA, PROJECT PROVIDES HURRICANE PROTECTION ALONG BOTH BANKS OF THE MISSISSIPPI RIVER SOUTH OF NEW ORLEANS. IN FISCAL YEAR 1996, WE WILL INITIATE ONE SECOND ENLARGEMENT LEVEE CONTRACT, ONE T-WALL REPLACEMENT CONTRACT AND ONE FOURTH ENLARGEMENT LEVEE CONTRACT, INITIATE AND COMPLETE A MITIGATION CONTRACT, AND COMPLETE A SECOND ENLARGEMENT LEVEE CONTRACT. FISCAL YEAR 1997 FUNDS WILL BE USED TO INITIATE ONE SECOND ENLARGEMENT LEVEE CONTRACT, CONTINUE ONE SECOND ENLARGEMENT LEVEE CONTRACT, AND COMPLETE ONE FOURTH ENLARGEMENT LEVEE CONTRACT AND ONE T-WALL REPLACEMENT.

SOUTHEAST LOUISIANA, LOUISIANA

THE SOUTHEAST LOUISIANA, LOUISIANA, PROJECT WILL PROVIDE IMPROVEMENTS FOR FLOOD CONTROL AND RAINFALL DRAINAGE SYSTEMS IN JEFFERSON, ORLEANS, AND ST. TAMMANY PARISHES, LOUISIANA, AND HURRICANE SURGE PROTECTION FEATURES IN ST. TAMMANY PARISH. FISCAL YEAR 1996 FUNDS ARE BEING USED TO PREPARE THE TECHNICAL REPORTS AND THE PROJECT COOPERATION AGREEMENTS NECESSARY TO INITIATE CONSTRUCTION. FISCAL YEAR 1997 FUNDS WILL BE USED TO INITIATE CONSTRUCTION ON THE NEW WESTWEGO PUMPING STATION AND

CHANNEL WORK ON CANAL #3 IN JEFFERSON PARISH AND INITIATE THE BROAD STREET PUMPING STATION IN ORLEANS PARISH.

WESTWEGO TO HARVEY CANAL, LOUISIANA

THE WESTWEGO TO HARVEY CANAL, LOUISIANA, PROJECT WILL PROVIDE HURRICANE PROTECTION TO THE URBAN AREAS BETWEEN WESTWEGO AND THE HARVEY CANAL BY IMPROVING EXISTING LEVEES AND CONSTRUCTING NEW LEVEES AND FLOODWALLS. A POST-AUTHORIZATION CHANGE REPORT CURRENTLY BEING PROCESSED RECOMMENDS EXPANDING THE WESTWEGO TO HARVEY PROJECT TO INCLUDE THE LAKE CATAOUATCHE AREA. IN FISCAL YEAR 1996 WE WILL INITIATE ONE FIRST LIFT LEVEE CONTRACT, CONTINUE A FIRST LIFT LEVEE CONTRACT AND A FLOODWALL CONTRACT, COMPLETE A FLOODWALL AND FLOODGATE CLOSURE CONTRACT, AND COMPLETE THE POST-AUTHORIZATION CHANGE REPORT. FISCAL YEAR 1997 FUNDS WILL BE USED TO CONTINUE CONSTRUCTION ON A FIRST LIFT LEVEE CONTRACT AND COMPLETE A FLOODWALL CONTRACT AND A FIRST LIFT LEVEE CONTRACT.

CAPE GIRARDEAU-JACKSON, MISSOURI

THE CAPE GIRARDEAU-JACKSON METROPOLITAN AREA, MISSOURI, URBAN FLOOD CONTROL PROJECT WAS INITIATED IN FISCAL YEAR 1990 AND IS CURRENTLY 73 PERCENT COMPLETE. FISCAL YEAR 1996 FUNDS ARE BEING USED TO COMPLETE CHANNEL IMPROVEMENT WORK ON CAPE LACROIX

CREEK AND WALKER BRANCH 1, 2A AND 2B. FISCAL YEAR 1997 FUNDS WILL BE USED TO INITIATE CONSTRUCTION ON WALKER BRANCH 3.

MERAMEC RIVER BASIN, VALLEY PARK LEVEE, MISSOURI

THE CITY OF VALLEY PARK, MISSOURI, IS LOCATED SOUTHWEST OF ST. LOUIS ALONG THE LEFT BANK OF THE MERAMEC RIVER. SINCE THE EARLY 1900'S, THE CITY HAS EXPERIENCED 11 MAJOR FLOODS, INCLUDING THE DECEMBER 1982 FLOOD OF RECORD. THIS FLOOD CAUSED DAMAGES ESTIMATED IN EXCESS OF $21 MILLION. THE MOST RECENT FLOODING OCCURRED IN SEPTEMBER AND AGAIN IN NOVEMBER 1993. THE PROJECT PROVIDES FOR 3.2 MILES OF LEVEE, 3 CLOSURE STRUCTURES, 6 GRAVITY DRAINS, AND 33 RELIEF WELLS. THE FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO INITIATE CONSTRUCTION OF LEVEE ITEM III.

STE. GENEVIEVE, MISSOURI

THE STE. GENEVIEVE, MISSOURI, FLOOD CONTROL PROJECT IS ESTIMATED TO COST $54 MILLION. THE FIRST PHASE OF THE PROJECT IS A LEVEE AND PUMP STATION TO PROTECT STE. GENEVIEVE'S NATIONAL HISTORIC LANDMARK DISTRICT FROM MISSISSIPPI RIVER FLOODING. OTHER PARTS OF THE PROJECT, CONSISTING OF IMPROVEMENTS ON TWO INTERIOR TRIBUTARY STREAMS AND RECREATION FACILITIES, ARE UNPROGRAMMED AT THIS TIME BASED ON LOCAL SPONSOR PRIORITIES. THE PROJECT COOPERATION AGREEMENT WAS SIGNED IN AUGUST 1995. WORK IN

FISCAL YEAR 1997 WILL BE PERFORMED WITH UNOBLIGATED CARRYOVER AND WILL INCLUDE INITIATION OF THE NORTH CLOSURE STRUCTURE AND TWO LEVEE ITEMS.

MISSISSIPPI RIVER, LOCK AND DAM 24, ILLINOIS AND MISSOURI

MAJOR REHABILITATION OF THE AGED LOCK AND DAM 24 STRUCTURE LOCATED NEAR CLARKSVILLE, MISSOURI, IS NECESSARY. FISCAL YEAR 1996 FUNDS WILL BE USED TO INITIATE TWO CONTRACTS, ONE FOR BRIDGE COLUMNS AND ONE FOR MECHANICAL AND ELECTRICAL REHABILITATION. THE FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE THESE CONTRACTS.

MISSISSIPPI RIVER, LOCK AND DAM 25, ILLINOIS AND MISSOURI

LOCK AND DAM 25 IS LOCATED NEAR WINFIELD, MISSOURI, 241.1 MILES ABOVE THE MOUTH OF THE OHIO RIVER. THE STRUCTURE HAS AGED BEYOND ITS DESIGN LIFE AND REHABILITATION TO CORRECT MAJOR PROBLEMS WAS INITIATED IN FISCAL YEAR 1994. FISCAL YEAR 1997 FUNDS WILL BE USED TO INITIATE REHABILITATION OF THE AUXILIARY LOCK CLOSURE AND COMPLETE THE AUXILIARY LOCK CLOSURE GATES AND THE MITER GATE REPLACEMENT.

OPERATION AND MAINTENANCE, GENERAL

OUR REQUEST FOR OPERATION AND MAINTENANCE, GENERAL, FUNDS FOR FISCAL YEAR 1997 IS $185.9 MILLION, WHICH IS A DECREASE OF $4.1 FROM OUR FISCAL YEAR 1996 ALLOCATION. REQUESTED FISCAL YEAR 1997 FUNDS WILL PROVIDE FOR CONTINUED OPERATION AND MAINTENANCE AT 45 COMPLETED PROJECTS.

NAVIGATION PROJECTS

OUR REQUEST INCLUDES $150.2 MILLION FOR NAVIGATION. THIS WILL ALLOW US TO MAINTAIN 30 HARBOR AND CHANNEL PROJECTS AND 8 CANALIZED WATERWAYS. OF THE FUNDS REQUESTED, $96.3 MILLION OR 64 PERCENT IS FOR MAINTENANCE DREDGING.

FLOOD CONTROL PROJECTS

FLOOD CONTROL PROJECTS ACCOUNT FOR $16.1 MILLION OF OUR REQUEST. THE FUNDS REQUESTED WILL PROVIDE FOR OPERATION AND MAINTENANCE OF EIGHT FLOOD CONTROL RESERVOIR PROJECTS AND FOR CHANNEL IMPROVEMENTS AND INSPECTION OF COMPLETED WORKS.

MULTIPLE-PURPOSE PROJECTS

WE OPERATE FOUR MULTIPLE-PURPOSE PROJECTS WHICH ACCOUNT FOR $17.5 MILLION OF OUR REQUEST. BENEFITS OF THESE PROJECTS INCLUDE HYDROPOWER PRODUCTION.

PROTECTION OF NAVIGATION

OUR REQUEST INCLUDES $2.1 MILLION FOR PROTECTION OF NAVIGATION ON OUR WATERWAYS. INVOLVED ARE PROJECT CONDITION SURVEYS AND THE REMOVAL OF AQUATIC GROWTH.

MISSISSIPPI RIVER AND TRIBUTARIES PROGRAM

NOW I WILL DISCUSS THE MISSISSIPPI RIVER AND TRIBUTARIES PROGRAM. THE FISCAL YEAR 1997 MISSISSIPPI RIVER AND TRIBUTARIES BUDGET REQUEST IS FOR $310.3 MILLION BEFORE ASSIGNMENT OF SAVINGS AND SLIPPAGE.

GENERAL INVESTIGATIONS

FUNDS IN THE AMOUNT OF $2.9 MILLION ARE REQUESTED UNDER THE GENERAL INVESTIGATIONS CATEGORY AND WILL PROVIDE FOR SIX ACTIVITIES. THESE INCLUDE COMPLETION OF ONE AND CONTINUATION OF THREE FLOOD DAMAGE PREVENTION FEASIBILITY STUDIES, COMPLETION OF

ONE FLOOD CONTROL PRECONSTRUCTION ENGINEERING AND DESIGN EFFORT, AND THE COLLECTION AND STUDY OF BASIC DATA.

SURVEYS

MORGANZA, LOUISIANA, TO THE GULF OF MEXICO, LOUISIANA

ON THE MORGANZA, LOUISIANA, TO THE GULF OF MEXICO STUDY, THE REMAINING INVESTIGATIONS ARE FOCUSED ON VARIOUS ALTERNATIVES FOR HURRICANE PROTECTION IN TERREBONNE PARISH. FUNDS AVAILABLE IN FISCAL YEAR 1996 AND REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE THE FEASIBILITY PHASE.

MISSISSIPPI DELTA, MISSISSIPPI

THE MISSISSIPPI DELTA, MISSISSIPPI, FEASIBILITY STUDY HAS RESULTED IN NO FINDINGS OF ECONOMICAL SOLUTIONS TO FLOODING IN THE BIG SUNFLOWER RIVER BASIN THAT HAS BEEN OF MAJOR CONCERN TO RESIDENTS. HOWEVER, FUNDS AVAILABLE IN FISCAL YEAR 1996 WILL BE USED TO DOCUMENT CHANNEL ENLARGEMENT ALTERNATIVES AND TO FOCUS ON A DETAILED ANALYSIS OF MAINTENANCE REQUIREMENTS FOR THE UPPER PORTION OF THE BIG SUNFLOWER BASIN. THE FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO COMPLETE THESE STUDIES IN JULY 1997.

REELFOOT LAKE, TENNESSEE AND KENTUCKY

THE REELFOOT LAKE, TENNESSEE AND KENTUCKY, STUDY AREA IS LOCATED IN NORTHWEST TENNESSEE AND SOUTHWEST KENTUCKY. THE STUDY IS INVESTIGATING THE NEED FOR IMPROVEMENTS FOR FLOOD CONTROL, SEDIMENTATION CONTROL, WATER QUALITY, WATER SUPPLY, FISH AND WILDLIFE RESTORATION, RECREATION, AND REGIONAL DEVELOPMENT. FUNDS AVAILABLE IN FISCAL YEAR 1996 AND REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE THE FEASIBILITY PHASE.

WOLF RIVER, MEMPHIS, TENNESSEE

THE WOLF RIVER STUDY AREA IS LOCATED IN SOUTHWEST TENNESSEE AND NORTHWEST MISSISSIPPI. IN THE STUDY, WE ARE INVESTIGATING MEASURES TO PROTECT PUBLIC INFRASTRUCTURES AND RESTORE AND PROTECT THE NATIONALLY SIGNIFICANT FISH AND WILDLIFE HABITAT IN THE BASIN. THE RECONNAISSANCE PHASE IS SCHEDULED FOR COMPLETION IN SEPTEMBER 1996. IF THE RECONNAISSANCE REPORT IS CERTIFIED TO BE IN ACCORD WITH POLICY, FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE INTO THE FEASIBILITY PHASE OF THE PROJECT.

PRECONSTRUCTION ENGINEERING AND DESIGN

EASTERN ARKANSAS REGION COMPREHENSIVE STUDY

(GRAND PRAIRIE AREA GENERAL REEVALUATION)

THE EASTERN ARKANSAS REGION COMPREHENSIVE STUDY IS A MULTIPURPOSE STUDY WITH PRIMARY EMPHASIS ON AGRICULTURAL WATER SUPPLY, CONSERVATION, AND FISH AND WILDLIFE ENHANCEMENT. THE MAJOR PROBLEM IDENTIFIED IS THE DEPLETION OF THE ALLUVIAL AQUIFER, WHICH PROVIDES ESSENTIALLY ALL THE WATER USED FOR AGRICULTURAL IRRIGATION.

THE PLAN IDENTIFIED IN THE DRAFT FEASIBILITY REPORT FOR THE GRAND PRAIRIE AREA CONSISTS OF A MAJOR PUMPING STATION AND A NETWORK OF NEW AND IMPROVED CHANNELS WITH ASSOCIATED STRUCTURES THAT WOULD PROVIDE INTERBASIN TRANSFER OF SURFACE WATER TO THE WATER DEPLETED AREAS. INCLUDED AS AN INTEGRAL PART OF THE PLAN ARE CONSERVATION MEASURES, GROUNDWATER MANAGEMENT STRATEGIES, ON-FARM STORAGE RESERVOIRS, AND FISH AND WILDLIFE MEASURES.

FUNDS AVAILABLE IN FISCAL YEAR 1996 WILL BE USED TO CONTINUE PRECONSTRUCTION ENGINEERING AND DESIGN. THE FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO COMPLETE THE DRAFT GENERAL REEVALUATION REPORT IN MARCH 1997.

CONSTRUCTION

NEXT, I WILL DISCUSS THE MISSISSIPPI RIVER AND TRIBUTARIES CONSTRUCTION PROGRAM FOR WHICH $173.9 MILLION IS REQUESTED FOR FISCAL YEAR 1997, A DECREASE OF $39.5 MILLION OVER THE AMOUNT ALLOCATED IN FISCAL YEAR 1996. THESE FUNDS WILL ALLOW US TO INITIATE 1 AND TO CONTINUE 13 CONSTRUCTION PROJECTS.

HELENA AND VICINITY, ARKANSAS

THE HELENA AND VICINITY, ARKANSAS, PROJECT IS A NEW CONSTRUCTION START IN FISCAL YEAR 1997. THE PROJECT IS AN URBAN FLOOD CONTROL PROJECT AND WILL PROVIDE APPROXIMATELY A 25-YEAR LEVEL OF PROTECTION FOR THE DOWNTOWN BUSINESS DISTRICT OF THE CITY OF HELENA AND FOR THE ADJACENT RESIDENTIAL AREA. THE PLAN OF IMPROVEMENT CONSISTS OF APPROXIMATELY 1.41 MILES OF CHANNEL IMPROVEMENTS WITHIN THE CITY LIMITS OF HELENA.

THE FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED FOR NEGOTIATION AND EXECUTION OF THE PROJECT COOPERATION AGREEMENT SCHEDULED FOR NOVEMBER 1996, FINALIZATION OF PLANS AND SPECIFICATIONS FOR THE FIRST CHANNEL ITEM, AND INITIATION OF PLANS AND SPECIFICATIONS FOR THE SECOND, AND FINAL, CHANNEL ITEM.

MISSISSIPPI RIVER LEVEES

THE MISSISSIPPI RIVER LEVEES PROJECT IS A COMPONENT OF THE MAIN STEM SYSTEM FOR THE CONTROL OF FLOODS ON THE MISSISSIPPI RIVER. THE LEVEE SYSTEM PROVIDES PROTECTION TO 23,620 SQUARE MILES AND PARTIAL PROTECTION TO AN ADDITIONAL 3,780 SQUARE MILES IN THE ALLUVIAL VALLEY SUBJECT TO FLOODING BY THE PROJECT FLOOD. THE VALUE OF LANDS AND IMPROVEMENTS PROTECTED BY AUTHORIZED WORKS AGAINST THE DESIGN FLOOD IS $124.9 BILLION IN 1995 DOLLARS.

AS PART OF THE MISSISSIPPI RIVER LEVEES PROJECT, HIGH PRIORITY CONTINUES TO BE PLACED ON UPGRADING THE LEVEES AND FLOODWALLS IN THE NEW ORLEANS METROPOLITAN AREA. ONE CONTRACT, THE NAVAL RESERVATION LEVEE ENLARGEMENT, IS CURRENTLY UNDERWAY IN THIS AREA AND WILL COMPLETE THIS FISCAL YEAR.

WORK CONTINUES ON RAISING LEVEES IN NORTHERN LOUISIANA HAVING THE MOST SEVERE GRADE DEFICIENCIES. IN THIS AREA, FROM OPPOSITE NATCHEZ, MISSISSIPPI, NORTH TO THE LOUISIANA-ARKANSAS STATE LINE, LEVEES ARE FROM 2 TO 9 FEET DEFICIENT IN GRADE. ONE CONTRACT FOR RAISING THE LEVEE IN THIS AREA IS UNDERWAY, ONE MORE IS SCHEDULED FOR INITIATION, AND ONE WILL COMPLETE IN FISCAL YEAR 1996. WITH FUNDS REQUESTED FOR FISCAL YEAR 1997, WE WILL CONTINUE THE FISCAL YEAR 1996 ITEM, INITIATE ONE NEW ITEM, AND COMPLETE ONE ITEM IN THE DEFICIENCY AREA.

A CONTRACT FOR EXTENDING THE TIPTONVILLE, TENNESSEE, LEVEE IS SCHEDULED FOR AWARD IN MARCH 1996. THIS CONTRACT, WHEN COMPLETED, WILL PROVIDE FLOOD PROTECTION TO ABOUT 150 STRUCTURES IN NORTH TIPTONVILLE, TENNESSEE, AND ABOUT 1,700 ACRES OF RESIDENTIAL AND AGRICULTURAL LANDS.

IN TERMS OF THE TOTAL MISSISSIPPI RIVER LEVEES PROGRAM, FISCAL YEAR 1997 FUNDS HAVE BEEN REQUESTED TO INITIATE EIGHT LEVEE CONTRACT ITEMS, CONTINUE FOUR ITEMS, AND COMPLETE EIGHT ITEMS.

CHANNEL IMPROVEMENT

UNDER THE CHANNEL IMPROVEMENT PROJECT, ANOTHER COMPONENT OF THE MAIN STEM SYSTEM, ABOUT 1,018 MILES OF THE 1,085 MILES OF AUTHORIZED BANK PROTECTION HAVE BEEN COMPLETED. WE PLAN TO PLACE 4.5 MILES OF REVETMENTS DURING 1996. FISCAL YEAR 1997 FUNDS HAVE BEEN REQUESTED TO PLACE 4.3 MILES OF REVETMENTS.

ATCHAFALAYA BASIN, LOUISIANA

OF THE 449 MILES OF LEVEES IN THE ATCHAFALAYA BASIN PROJECT, WE WILL HAVE COMPLETED OR HAVE UNDER CONSTRUCTION 369 MILES THROUGH FISCAL YEAR 1996. WITH THE FISCAL YEAR 1997 BUDGET REQUEST, WE WILL INITIATE ONE LEVEE ENLARGEMENT; INITIATE AND

COMPLETE ONE LEVEE ENLARGEMENT, ONE EROSION PROTECTION ITEM, AND TWO REVETMENT ITEMS; AND CONTINUE REVETMENT STONE BANK PAVING.

WE WILL ALSO CONTINUE THE REEVALUATION STUDY OF THE LOWER ATCHAFALAYA RIVER AND SURROUNDING AREA UNDER THE ATCHAFALAYA BASIN PROJECT. THE REEVALUATION IS INVESTIGATING POSSIBLE CHANGES TO THE EXISTING PROJECT THAT MAY FACILITATE IMPROVEMENTS TO THE ENVIRONMENT, FLOOD CONTROL, AND OPERATION AND MAINTENANCE OF THE PROJECT TO INCLUDE SEVERAL ALTERNATIVES WITH THE AIM OF POSSIBLY REDUCING THE VOLUME OF FLOOD WATERS PASSING MORGAN CITY AND BERWICK, LOUISIANA, FOR FLOWS SMALLER THAN PROJECT FLOOD FLOWS. THIS REEVALUATION WAS INITIATED IN JULY 1994 AND WILL TAKE ABOUT THREE MORE YEARS TO COMPLETE. DUE TO THE UNIQUE RIVERINE AND COASTAL NATURE OF THE AREA AND THE WIDE AND DIVERSE INTEREST IN THE REEVALUATION, WE ARE EMPLOYING AN INTENSIVE PUBLIC INVOLVEMENT PROGRAM THROUGHOUT THE REEVALUATION EFFORT.

ATCHAFALAYA BASIN FLOODWAY SYSTEM, LOUISIANA

ON THE ATCHAFALAYA BASIN FLOODWAY SYSTEM PROJECT, PROGRAMMED WORK PROVIDES FOR ACQUISITION OF 50,000 ACRES IN FEE FOR PUBLIC ACCESS AND EASEMENTS ON 338,000 ACRES FOR FLOWAGE, DEVELOPMENTAL CONTROL, AND ENVIRONMENTAL PROTECTION. APPROXIMATELY 30,000 ACRES OF FEE LAND AND 19,000 ACRES OF EASEMENTS HAVE BEEN ACQUIRED.

FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE FEE AND EASEMENT LAND ACQUISITION AND TO CONTINUE PLANNING, ENGINEERING, AND DESIGN ON THE RECREATION UNIT AND THE MANAGEMENT UNIT TO DETERMINE IF CONSTRUCTION OF THESE UNITS IS APPROPRIATE AT THIS TIME.

EIGHT MILE CREEK, ARKANSAS

THE EIGHT MILE CREEK, ARKANSAS, PROJECT INCLUDES CHANNEL IMPROVEMENTS TO PROVIDE 100-YEAR FLOOD PROTECTION TO THE URBAN AREA OF PARAGOULD, ARKANSAS, AND MAINTAIN CURRENT 3-YEAR PROTECTION LEVELS IN THE DOWNSTREAM RURAL AREA. THE PROJECT COOPERATION AGREEMENT WITH THE CITY OF PARAGOULD IS SCHEDULED FOR EXECUTION IN MAY 1996. THE FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE CONSTRUCTION OF THE FIRST CHANNEL ITEM.

ST. FRANCIS BASIN, ARKANSAS AND MISSOURI

THE ST. FRANCIS BASIN PROJECT WILL PROVIDE PROTECTION AGAINST HEADWATER FLOODS OF THE ST. FRANCIS AND LITTLE RIVERS TO AN AREA OF OVER 1.4 MILLION ACRES AND AGAINST BACKWATER FLOODS OF THE MISSISSIPPI RIVER TO AN AREA OF OVER 500,000 ACRES. THE FUNDS AVAILABLE IN FISCAL YEAR 1996 ARE BEING USED FOR RELOCATION WORK ON ONE RAILROAD BRIDGE, THREE STATE BRIDGES, SIX COUNTY ROADS, AND CONSTRUCTION ON THREE CHANNEL IMPROVEMENT ITEMS COVERING ABOUT 23 MILES OF CHANNEL. APPROXIMATELY 200 ACRES OF

23-557 96 - 2

MITIGATION LANDS IN MISSOURI WILL ALSO BE ACQUIRED. THE FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL PERMIT RELOCATION WORK ON ONE STATE BRIDGE, THREE COUNTY BRIDGES, AND TWO RAILROAD BRIDGES, AND CONSTRUCTION ON THREE CHANNEL IMPROVEMENT ITEMS COVERING ABOUT 17 MILES OF CHANNELS. THE PROJECT IS ABOUT 90 PERCENT COMPLETE.

TENSAS BASIN, ARKANSAS AND LOUISIANA

ALL CURRENT ACTIVITIES ON THE TENSAS BASIN PROJECT ARE ON THE SICILY ISLAND AREA PORTION OF THE RED RIVER BACKWATER AREA PROJECT UNIT. THE SICILY ISLAND AREA CONSISTS OF ABOUT 100,000 ACRES OF LAND AND RURAL DEVELOPMENT IN CATAHOULA AND FRANKLIN PARISHES IN EAST CENTRAL LOUISIANA.

THIS AREA IS SUBJECT TO FREQUENT FLOODING CAUSED BY BACKWATER FROM THE MISSISSIPPI AND RED RIVERS AND FLOODS FROM THE OUACHITA AND TENSAS RIVERS. THE 1-YEAR FREQUENCY FLOOD IN THE AREA WOULD INUNDATE APPROXIMATELY 13,000 ACRES AND THE 10-YEAR FLOOD WOULD INUNDATE APPROXIMATELY 56,000 ACRES. THE PROJECT WILL PROVIDE 10-YEAR PROTECTION TO THE SICILY ISLAND AREA.

THE FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO INITIATE TWO LEVEE ITEMS, INITIATE AND COMPLETE THE UTILITY RELOCATIONS FOR THESE ITEMS, CONTINUE ONE LEVEE ITEM AND THE FOOL RIVER LEVEE AND PUMPING PLANT, AND COMPLETE TWO LEVEE ITEMS.

WHITEMAN'S CREEK, ARKANSAS

THE WHITEMAN'S CREEK, ARKANSAS, PROJECT IS LOCATED IN CRAIGHEAD COUNTY, ARKANSAS, APPROXIMATELY 50 MILES NORTHWEST OF MEMPHIS, TENNESSEE. THE PLAN OF IMPROVEMENT PROVIDES FOR 6.1 MILES OF CHANNEL IMPROVEMENTS FOR JONESBORO, ARKANSAS, ON HIGGENBOTTOM CREEK, MOORE'S DITCH, TURTLE CREEK, AND WHITEMAN'S CREEK. THE PROJECT WILL PROVIDE APPROXIMATELY 25-YEAR PROTECTION ALONG HIGGINBOTTOM CREEK AND 10-YEAR PROTECTION ALONG MOORE'S DITCH, TURTLE CREEK, AND WHITEMAN'S CREEK.

THE PROJECT COOPERATION AGREEMENT IS SCHEDULED FOR EXECUTION IN MAY 1996. FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO INITIATE CONSTRUCTION ON TURTLE AND WHITEMAN'S CREEKS AND CONTINUE WORK ON HIGGINBOTTOM CREEK.

MISSISSIPPI DELTA REGION, LOUISIANA

THE MISSISSIPPI DELTA REGION, LOUISIANA, PROJECT CONSISTS OF FOUR SALINITY CONTROL STRUCTURES DESIGNED TO DIVERT FRESHWATER FROM THE MISSISSIPPI RIVER INTO COASTAL BAYS AND MARSHES FOR FISH AND WILDLIFE RESTORATION.

THE COMPLETED CAERNARVON STRUCTURE ON THE EAST BANK OF THE MISSISSIPPI RIVER HAS BEEN OPERATED AS NEEDED SINCE AUGUST 1991. THE DIVERSION IS PRESERVING ABOUT 16,000 ACRES OF WETLANDS. THE

POST-CONSTRUCTION MONITORING PROGRAM HAS BEEN COMPLETED AND THE FINAL REPORT IS BEING PREPARED. THE PROJECT WILL BE TURNED OVER TO THE LOCAL SPONSOR IN APRIL 1996.

THE DAVIS POND DIVERSION STRUCTURE, WHEN COMPLETED, WILL PRESERVE AN ESTIMATED 83,000 ACRES OF WETLANDS. ADDITIONALLY, 777,000 ACRES OF MARSHES AND BAYS WILL BE BENEFITTED BY THE PROJECT. THE BUDGET REQUEST INCLUDES FUNDS TO INITIATE THE EAST AND WEST GUIDE LEVEES AND THE SOUTHERN PACIFIC RAILROAD BRIDGE RELOCATION; CONTINUE CONSTRUCTION OF THE DAVIS POND DIVERSION STRUCTURE, PUMPING STATION, AND RELATED RELOCATIONS; AND, COMPLETE UTILITY RELOCATIONS.

MISSISSIPPI AND LOUISIANA ESTUARINE AREAS, MISSISSIPPI AND LOUISIANA

THE MISSISSIPPI AND LOUISIANA ESTUARINE AREAS PROJECT WILL PROVIDE MEANS TO DIVERT WATER FROM THE MISSISSIPPI RIVER TO THE LAKE PONTCHARTRAIN BASIN AND MISSISSIPPI SOUND. FOR THE PAST 2 YEARS THIS PROJECT HAS BEEN UNDERGOING AN EXTENSIVE REANALYSIS BY FEDERAL, STATE, AND ENVIRONMENTAL INTERESTS, WITH ADDITIONAL INPUT FROM LOCAL ACADEMIC INSTITUTIONS. THE REANALYSIS IS FOCUSED ON CRITICAL AREAS OF FISHERIES IMPACT, CIRCULATION AND WATER QUALITY, NUTRIENT IMPACT ANALYSIS, AND OVERLAND FLOW. THE MOST SIGNIFICANT PROPOSALS OF REDUCING THE MAXIMUM FLOW AND

DIVERTING AS MUCH AS PRACTICAL OVER WETLANDS ARE PRESENTLY BEING EVALUATED WITH RESULTS EXPECTED IN APRIL 1996.

THE PROJECT COOPERATION AGREEMENT IS SCHEDULED FOR EXECUTION IN JUNE 1996 AND WE ARE REQUESTING FUNDS FOR FISCAL YEAR 1997 TO CONTINUE THE PREPARATION OF PLANS AND SPECIFICATIONS.

YAZOO BASIN, MISSISSIPPI

ON THE YAZOO BASIN PROJECT, WORK ON THE REFORMULATION STUDY IS CONTINUING. THIS STUDY INVOLVES FOUR PORTIONS OF THE YAZOO BASIN PROJECT AND IS ESTIMATED TO COST $32.4 MILLION. BASED ON RESULTS OF COMPLETED REFORMULATIONS FOR THE UPPER STEELE BAYOU AND UPPER YAZOO PROJECTS PORTIONS, THE REFORMULATION EFFORT HAS, TO DATE, BEEN COMPLETELY SUCCESSFUL IN THAT PROJECT COSTS HAVE BEEN REDUCED BY $75.0 MILLION, ENVIRONMENTAL IMPACTS HAVE BEEN REDUCED, AND ENVIRONMENTAL AND LOCAL INTERESTS ARE SATISFIED. IN FISCAL YEAR 1996 WE WILL CONTINUE THE BACKWATER AREA PORTION WHICH WAS INITIATED IN JULY 1993. THE HEADWATER TRIBUTARIES PORTION, WHICH WAS INITIATED IN OCTOBER 1994, HAS BEEN TEMPORARILY SUSPENDED DUE TO FUNDING SHORTAGES. THE FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO CONTINUE BOTH OF THESE PORTIONS OF THE STUDY.

THE FUNDS REQUESTED FOR FISCAL YEAR 1997 FOR THE DEMONSTRATION EROSION CONTROL PROGRAM WILL PROVIDE FOR COMPLETION

OF THE PROJECT UNIT IN SEPTEMBER 1997. THIS PROGRAM HAS DEMONSTRATED ITS EFFECTIVENESS AND REMAINING WORK SHOULD BE ACCOMPLISHED AT NON-FEDERAL EXPENSE.

NONCONNAH CREEK, TENNESSEE AND MISSISSIPPI

THE NONCONNAH CREEK PROJECT IS LOCATED WITHIN THE MEMPHIS, TENNESSEE, METROPOLITAN AREA. FISCAL YEAR 1996 FUNDS ARE BEING USED TO INITIATE AND COMPLETE CHANNEL PROTECTION AT A SEWER LINE AND TO CONTINUE PLANNING, ENGINEERING, AND DESIGN WHILE THE CITY OF MEMPHIS RELOCATES THE U.S. HIGHWAY 51 BRIDGE. THE BRIDGE MUST BE RELOCATED BEFORE FEDERAL CONSTRUCTION ON THE PROJECT CAN CONTINUE. FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO INITIATE CONSTRUCTION OF CHANNEL ITEM 1 FROM MILE 0 TO MILE 6.2.

WEST TENNESSEE TRIBUTARIES, TENNESSEE

THE WEST TENNESSEE TRIBUTARIES PROJECT IS LOCATED ON THE OBION AND FORKED DEER RIVERS AND THEIR MAJOR TRIBUTARIES. NINETY MILES OF THE AUTHORIZED 225 MILES OF CHANNEL ENLARGEMENT HAVE BEEN COMPLETED, AND APPROXIMATELY 13,527 ACRES OF THE AUTHORIZED 32,000 ACRES OF THE MITIGATION LANDS HAVE BEEN ACQUIRED. THE STATE OF TENNESSEE IS THE PROJECT SPONSOR.

CONSTRUCTION OF THE REMAINDER OF THE PROJECT CANNOT BE PERFORMED DUE TO THE DENIAL OF WATER QUALITY CERTIFICATION BY THE

STATE. ACCORDINGLY, WE ARE ASSURING THAT THE CHANNELS ALONG BRIDGE AND UTILITY CROSSINGS IN THE UNCOMPLETED PORTION OF THE PROJECT ARE PROTECTED FROM EFFECTS OF THE COMPLETED CHANNEL WORK.

FISCAL YEAR 1996 FUNDS ARE BEING USED TO INITIATE CONSTRUCTION OF ONE CHANNEL PROTECTION ITEM AND TO COMPLETE ONE ITEM. THIS WORK IS NECESSARY FOR ADEQUATE PROTECTION OF THREE PIPELINE CROSSINGS AND SEVEN BRIDGES, AND FOR CHANNEL PROTECTION AND GRADE CONTROL STRUCTURES ALONG SEVEN TRIBUTARIES OF THE MAIN CHANNEL. FUNDS REQUESTED FOR FISCAL YEAR 1997 WILL BE USED TO INITIATE ONE CHANNEL PROTECTION ITEM, INITIATE AND COMPLETE RELOCATION OF TWO POWERLINES, AND COMPLETE ONE CHANNEL PROTECTION ITEM.

THE STATE OF TENNESSEE HAS PROVIDED TO THE CORPS ITS PLAN FOR THE REFORMULATION OF THE WEST TENNESSEE TRIBUTARIES PROJECT. IN AUGUST 1994, WE INITIATED A LIMITED REEVALUATION OF TWO SMALL DEMONSTRATION PROJECTS ON STOKER CREEK AND THE MIDDLE FORK FORKED DEER RIVER, INCLUDING BUCK CREEK, PROPOSED BY THE STATE IN ITS PLAN KNOWN AS THE "MISSION PLAN." THE PURPOSE OF THE REEVALUATION IS TO DETERMINE PROJECT FEASIBILITY AND FEDERAL INTEREST AND TO DETERMINE IF A REFORMULATION OF THE ENTIRE BASIN WITH APPLICATION OF THE "MISSION PLAN" PRINCIPLES IS WARRANTED. THE DRAFT REEVALUATION REPORT HAS BEEN COMPLETED AND IS UNDER REVIEW. A REFORMULATED PROJECT COULD POTENTIALLY SATISFY THE

CONCERNS OF BOTH FLOOD CONTROL AND ENVIRONMENTAL INTERESTS IN THE AREA WHO HAVE LONG BEEN IN DISAGREEMENT.

MAINTENANCE

OUR FISCAL YEAR 1997 REQUEST FOR MISSISSIPPI RIVER AND TRIBUTARIES MAINTENANCE IS $133.5 MILLION WHICH IS $5.1 MILLION MORE THAN ALLOCATED IN FISCAL YEAR 1996. THIS REQUEST WILL ALLOW CONTINUATION OF NECESSARY OPERATIONS AND MAINTENANCE ACTIVITIES ON 34 COMPLETED PROJECTS. OF THE $133.5 MILLION REQUEST, $91.6 MILLION, OR 69 PERCENT, WILL BE USED FOR OPERATION AND MAINTENANCE OF MAIN STEM LEVEES, CHANNELS, AND HARBORS. THIS WORK CONSISTS OF MISSISSIPPI RIVER MAIN STEM CHANNEL AND HARBOR DREDGING, REPAIRS OF LEVEE SLIDES, BANKS, DIKES, AND REVETMENTS. ANOTHER $39.3 MILLION, OR 29 PERCENT, IS FOR OPERATION AND MAINTENANCE OF TRIBUTARY RIVER BASIN PROJECTS, AND THE REMAINING $2.6 MILLION, OR 2 PERCENT, IS FOR MAPPING AND INSPECTION OF COMPLETED WORKS.

FUNDS AVAILABLE IN FISCAL YEAR 1996 ARE BEING USED FOR OPERATION OF PROJECTS AND REPAIRS OF LEVEE SLIDES, REPAIRS TO REVETMENTS, HARBOR DREDGING, AND DREDGING OF THE MISSISSIPPI RIVER.

FLOOD RECOVERY

I AM HAPPY TO REPORT THAT RECOVERY FROM THE FLOODS OF 1993 AND 1995 IS NEARING COMPLETION.

FINAL REPAIRS HAVE BEEN COMPLETED IN 45 OF 47 LEVEE DISTRICTS WITHIN MY DIVISION BOUNDARIES DAMAGED BY THE FLOOD OF 1993. FINAL LEVEE REPAIRS IN THE LAST TWO LEVEE DISTRICTS ARE SCHEDULED FOR COMPLETION IN APRIL 1996. FOUR CONTRACTS ARE ONGOING FOR RELIEF WELL REHABILITATION OR REPLACEMENT. THIS WORK IS SCHEDULED FOR COMPLETION IN JUNE 1996. THE ESTIMATE OF REPAIR COSTS FOR THE FLOOD OF 1993 IS $90 MILLION.

THE FLOOD OF 1995 DAMAGED 23 LEVEE DISTRICTS WITHIN MY DIVISION. REPAIRS HAVE BEEN COMPLETED IN 7 OF THESE DISTRICTS AND REPAIRS IN THE REMAINING 16 DISTRICTS SHOULD BE COMPLETED IN MAY 1996. THE ESTIMATE OF REPAIR COSTS FOR THE FLOOD OF 1995 IS $20 MILLION.

COASTAL WETLANDS PLANNING, PROTECTION, AND RESTORATION ACT

IN CONCLUDING THIS REPORT, I WOULD LIKE TO COVER THE STATUS OF A PROGRAM WE ARE INVOLVED IN AS PART OF A JOINT EFFORT BETWEEN THE STATE OF LOUISIANA AND FOUR OTHER FEDERAL AGENCIES TO ADDRESS THE CRITICAL LOSS OF COASTAL WETLANDS IN LOUISIANA. UNDER AUTHORITY OF THE COASTAL WETLANDS PLANNING, PROTECTION, AND

RESTORATION ACT, THE LOUISIANA COASTAL WETLAND CONSERVATION AND RESTORATION TASK FORCE COMPLETED THE LOUISIANA COASTAL WETLANDS RESTORATION PLAN IN JANUARY 1994. THE RECORD OF DECISION WAS SIGNED ON MARCH 18, 1994. THE REPORT IS CURRENTLY AT THE OFFICE OF MANAGEMENT AND BUDGET AWAITING TRANSMITTAL TO THE CONGRESS.

THE TASK FORCE HAS ALSO COMPLETED FIVE PRIORITY PROJECT LISTS OF COASTAL WETLANDS RESTORATION PROJECTS. THE FIFTH LIST IS SCHEDULED FOR SUBMISSION TO CONGRESS IN APRIL 1996.

OF THE 55 ACTIVE PROJECTS ON THE FIRST 4 LISTS, 11 ARE CORPS PROJECTS. THE FIFTH LIST IDENTIFIED A TOTAL OF NINE PROJECTS OF WHICH ONE IS A CORPS PROJECT. WE HAVE COMPLETED CONSTRUCTION OF TWO PROJECTS AND WILL INITIATE CONSTRUCTION OF THREE PROJECTS IN FISCAL YEAR 1996 AND THREE PROJECTS IN FISCAL YEAR 1997. SCHEDULES FOR IMPLEMENTATION OF THE REMAINING FOUR PROJECTS ARE BEING DEVELOPED.

U. S. ARMY CORPS OF ENGINEERS
CIVIL WORKS PROGRAM

CONGRESSIONAL SUBMISSION
FISCAL YEAR 1997

LOWER MISSISSIPPI VALLEY DIVISION

Budgetary information will not be released outside the Department of the Army until 18 March 1996.

Justification of Estimate for Civil Functions Activities
Department of the Army, Fiscal Year 1997

LOWER MISSISSIPPI VALLEY DIVISION

Corps of Engineers

Table of Contents

	Page Nº.
Surveys	
Alexander and Pulaski Counties, Illinois	7
Bayou Tigre, Erath, Louisiana	8
Black Bayou Diversion, Louisiana	9
Chesterfield, Missouri	15
Festus and Crystal City, Missouri	16
Intracoastal Waterway Locks, Louisiana	3
Jefferson Parish, Louisiana	10
Lafayette Parish, Louisiana	11
Lower River des Peres, Missouri	17
McKinney Bayou, Arkansas and Texas	5
Mississippi River Ship Channel Improvements, Louisiana	4
Orleans Parish, Louisiana	12
St. Tammany Parish, Louisiana	13
West Shore - Lake Pontchartrain, Louisiana	14
Preconstruction Engineering and Design	
Comite River, Louisiana	20
East Baton Rouge Parish, Louisiana	21
Jackson Metropolitan Area, Mississippi	23
Nutwood Drainage and Levee District, Illinois	19
West Bank - East of Harvey Canal, Louisiana	22

Justification of Estimate for Civil Functions Activities
Department of the Army, Fiscal Year 1997

LOWER MISSISSIPPI VALLEY DIVISION

Corps of Engineers

Table of Contents Continued

	Page №.
Construction	
Aloha-Rigolette, Louisiana	95
Cape Girardeau-Jackson, Missouri	135
East St. Louis, Illinois	90
Lake Pontchartrain and Vicinity, Louisiana	101
Larose to Golden Meadow, Louisiana	110
Lock and Dam 24, Mississippi River, Illinois and Missouri (Major Rehabilitation)	150
Lock and Dam 25, Mississippi River, Illinois and Missouri (Major Rehabilitation)	154
Melvin Price Lock and Dam, Illinois and Missouri	54
Meramec River Basin, Valley Park Levee, Missouri	140
Mississippi River-Gulf Outlet, Louisiana	24
Mississippi River Between the Ohio and Missouri Rivers (Regulating Works), Missouri and Illinois	48
Mississippi River Ship Channel, Gulf to Baton Rouge, Louisiana	36
New Orleans to Venice, Louisiana	115
Red River Waterway-Mississippi River to Shreveport, Louisiana	60
Rend Lake, Illinois (Deficiency Correction)	85
Southeast Louisiana, Louisiana	124
Ste. Genevieve, Missouri	144
Westwego to Harvey Canal, Louisiana	129
Operation and Maintenance	158

MISSISSIPPI RIVER COMMISSION

Corps of Engineers

Table of Contents

	Page №.
FLOOD CONTROL, MISSISSIPPI RIVER AND TRIBUTARIES	
Surveys	
Mississippi Delta, Mississippi	174
Morganza to the Gulf, Louisiana	173
Reelfoot, Tennessee	175
Wolf River, Memphis, Tennessee	176
Preconstruction Engineering and Design	
Eastern Arkansas Region (Comprehensive Study), Arkansas	178
Construction	
Atchafalaya Basin, Louisiana	216
Atchafalaya Basin Floodway System, Louisiana	225
Channel Improvement, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri and Tennessee	199
Eight Mile Creek, Arkansas	234
Helena and Vicinity, Arkansas	182
Mississippi and Louisiana Estuarine Areas, Mississippi and Louisiana	272
Mississippi Delta Region, Louisiana	264
Mississippi River Levees, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri and Tennessee	187
Nonconnah Creek, Tennessee and Mississippi	305
St. Francis Basin, Arkansas and Missouri	239
Tensas Basin, Arkansas and Louisiana	248
West Tennessee Tributaries, Tennessee	312
Whiteman's Creek, Arkansas	259
Yazoo Basin, Mississippi	278
Maintenance	319

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

SUMMARY LOWER MISSISSIPPI VALLEY DIVISION

	FY 1996 Allocation	FY 1997 Request	Increase or Decrease
General Investigations			
Survey	$3,025,000	$ 3,310,000	$ +285,000
Preconstruction Engineering and Design	2,749,000	3,540,000	+791,000
Construction, General			
Construction	72,797,000[1]	50,100,000[2]	-22,697,000
Operation and Maintenance, General			
Project Operation and Maintenance	190,016,000	185,879,000	-4,137,000
TOTAL	$268,587,000	$242,829,000	$-25,758,000

[1] Includes $2,889,000 allocated from the Inland Waterways Trust Fund.

[2] Includes $3,000,000 to be derived from the Inland Waterways Trust Fund.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1997

Lower Mississippi Valley Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
1. SURVEYS - NEW					
a. Navigation Studies: None.					
b. Flood Damage Prevention Studies: None.					
c. Shoreline Protection Studies: None.					
d. Special Studies: None.					
e. Comprehensive Studies: None.					
f. Project Review Studies: None					

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
2. SURVEYS - CONTINUING					
a. Navigation Studies:					
Louisiana					
Intracoastal Waterway Locks	4,796,000	1,770,000	644,000	600,000	1,782,000

The study area is located in southern Louisiana between the Mississippi River and the Sabine River on the Louisiana-Texas border. This study was previously budgeted under the title of Algiers Lock, Louisiana. Algiers Lock is the most congested of the seven locks on the Gulf Intracoastal Waterway system west of the Mississippi River. Other locks with significant delays include Calcasieu Lock on the main stem of the Gulf Intracoastal Waterway and Port Allen and Bayou Sorrel Locks on the Gulf Intracoastal Waterway, Morgan City to Port Allen alternate route. All of the locks are structurally sound. Delays occur due to their restrictive dimensions. The locks, their 1994 tonnages, and average delays are as follows: Algiers, 21.3 million tons, 3.5 hours; Bayou Sorrel, 26.0 million tons, 1.9 hours; Calcasieu, 41.4 million tons, 1.2 hours; and Port Allen, 25.5 million tons, 2.5 hours. Tonnages are projected to increase, resulting in an increase in average delays. The purpose of this system study is to determine the feasibility of replacing these locks or constructing additional locks (based on a comprehensive system analysis procedure), with consideration given to the timing for each of the locks and the appropriate size of the lock replacement or addition. Constructing a larger lock replacement or an additional lock would increase the capacity of the structure(s) to deal with the projected increases in traffic levels. The locks are all features of the Gulf Intracoastal Waterway project which is listed in Section 206 of Public Law 95-502 as an inland waterway. This study is an interim study under the authority of the Gulf Intracoastal Waterway, Louisiana-Texas study. The results of the reconnaissance study indicate that there are immediate needs for capacity increases at Bayou Sorrel and Calcasieu Locks. The results of the study also indicate that there are future needs for capacity increases at Port Allen Lock and possibly Algiers Lock. The study will address the feasibility of a lock replacement at Bayou Sorrel Lock only, which has an immediate need for replacement for navigation and flood control purposes. This study and its anticipated outputs are in accord with Administration policy. The reconnaissance report was certified in January 1993. The feasibility phase study will be conducted at full Federal expense. The preliminary estimated cost of the feasibility phase is $3,800,000.

Fiscal Year 1996 funds are being used to continue the feasibility phase of the study. Fiscal Year 1997 funds will be used to continue the feasibility phase of the study.

The reconnaissance phase was completed June 1995. The feasibility study completion date is being determined.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1997 — Lower Mississippi Valley Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Mississippi River Ship Channel Improvements	1,000,000	0	222,000	278,000	500,000

The study area is located in southeastern Louisiana in the parishes of Plaquemines, St. Bernard, Orleans, Jefferson, St. Charles, St. John the Baptist, St. James, Ascension, Iberville and East and West Baton Rouge, Louisiana. The Mississippi River currently consists of a 45-foot deep channel to Baton Rouge, Louisiana. Another study is currently underway to determine if deepening, possibly up to 55-feet is warranted. Average deep-draft tonnage shipped on the Mississippi River for the last five years has been just over 200,000,000 tons. The study will focus on potential reductions in annual maintenance costs, environmental restoration, and increased efficiency of the navigation function of the lower Mississippi River which contributes significantly to the nation's economy. Increasing the efficiency of the navigation channel and reducing the annual maintenance are in accord with Administration policy. The reconnaissance study completion date is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
b. Flood Damage Prevention Studies:					
Arkansas					
McKinney Bayou	2,570,000	0	334,000	250,000	1,986,000

The McKinney Bayou, Arkansas, study will address the current need and feasibility of providing additional flood protection to urban and agricultural areas within the McKinney Bayou area. The study will be conducted under the existing Red River Basin Comprehensive Study authority. The study area is located in southwestern Arkansas in the vicinity of Texarkana, Arkansas and Texas. The McKinney Bayou area is a crescent-shaped watershed located adjacent to the Red River. The study area contains a total of 340 square miles, 66 percent of which is alluvial lands and 34 percent hilly uplands. Flood control measures for McKinney Bayou were first authorized by the Flood Control Act of 3 August 1955. The project features have been completed and include channel improvements and levee construction with appurtenant drainage works along McKinney Bayou. The Water Resources Development Act of 1976 authorized construction of a state line diversion, a diversion at Buzzard Bluff, improvement of McKinney Bayou channel, and land acquisition for mitigation. A reevaluation of authorized features of the McKinney Bayou project was completed in 1983. The reevaluation study indicated that the improvement of McKinney Bayou channel was economically feasible, but due to a lack of local support at that time, the project was reclassified in an inactive category. Average annual damages were estimated at $365,000. Future damages were projected to exceed $500,000 annually without the project. Some flooding continues to occur every 1 to 2 years and the 100-year flood is estimated to inundate approximately 50,000 cleared acres. The most recent major flood occurred in March/April 1989. This flood, approximately a 100-year event, overtopped the Federally constructed levee system resulting an estimated $2 million in damages. The local project sponsors now desire and support a comprehensive review of the area's water resource problems and needs to include a review of currently authorized features as well as other possible alternatives. The Miller County Improvement and Drainage District understands study/project cost-sharing requirements and has indicated a willingness to serve as the project sponsor. Their support for the study was initially expressed by letter 16 November 1992 and reaffirmed by letter 4 August 1994. This study and its anticipated outputs, flood control, are in accordance with Administration policy and will fully address any environmental needs.

Fiscal Year 1996 funds are being used to initiate the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1997 will be used to complete the reconnaissance phase. If the reconnaissance report is certified to be in accord with policy, the funds requested for Fiscal Year 1997 will also be used to continue into the feasibility phase of the study. The estimated cost of the feasibility phase is $4,140,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$4,640,000
Reconnaissance Phase (Federal)	500,000
Feasibility Phase (Federal)	2,070,000
Feasibility Phase (Non-Federal)	2,070,000

The reconnaissance phase is scheduled for completion in July 1997. The feasibility study completion date is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Illinois					
Alexander and Pulaski Counties	1,247,000	725,000	130,000	175,000	217,000

The study area, approximately 740 square miles, is located in portions of the southernmost Illinois counties of Alexander, Pulaski, Union, Johnson, Massac, and Pope. For reasons of marginal flood control benefits, changing land use, the recognized environmental uniqueness of the area and changing Corps wetlands restoration policy, the investigation has shifted from its original focus on flood control to its present purpose of habitat restoration. Factors contributing to the area's uniqueness include: trees over 1,000 years old, the presence of both a state refuge (9,000 acre Cache River State Natural Area) and a national refuge (35,000 acre Cypress Creek National Wildlife Refuge), exceptionally large trees including 2 national records and 12 state champions, numerous endangered species, and two national natural landmarks (Lower Cache River Swamp and Heron Pond-Little Black Slough). The study area is one of six areas in the U.S. where four or more physiographic regions overlap. Of these, the Cache River is considered by many experts to be the most diverse. Serious habitat degradation has occurred along the Cache River at least partly caused by prior Corps projects, including the Cache River levee and the Cache River diversion projects. Sedimentation from tributary streams is choking Lower Cache River Swamp, and riverbed entrenchment threatens to drain Heron Pond-Little Black Slough. As a joint partnership, the U.S. Fish and Wildlife Service, Illinois Department of Natural Resources, The Nature Conservancy, and Ducks Unlimited have turned to the Corps of Engineers for environmental engineering solutions to these problems. If environmental engineering solutions are not undertaken, this unique wetland area will be lost within decades. The study is in accord with Administration policy. The Illinois Department of Natural Resources is the feasibility phase cost-sharing sponsor.

Fiscal Year 1996 funds are being used to continue the feasibility phase. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase. The preliminary estimated cost of the feasibility phase is $1,390,000 which is being shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$ 1,942,000
Reconnaissance Phase (Federal)	552,000
Feasibility Phase (Federal)	695,000
Feasibility Phase (Non-Federal)	695,000

The reconnaissance phase was completed in November 1994. The completion date for the feasibility study is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Louisiana					
Bayou Tigre, Erath	1,285,000	135,000	50,000	100,000	1,000,000

Erath, Louisiana, with a population of 2,428 (1990), is located in Vermilion Parish (1990 population-50,055) in south-central Louisiana, approximately 20 miles south of Lafayette, Louisiana, and 10 miles from Vermilion Bay. Bayou Tigre extends from Erath southeastward to Bayou Carlin. Bayou Tigre is the outlet for drainage and flood flows from the Erath area. Flooding in the area is caused by the overflow of Bayou Tigre and its tributaries from rainfall and by tidal surges. The terrain in the Erath area is very flat and extensive shallow flooding occurs during heavy rainfalls. This flooding can be aggravated by high gulf stages. A major flood caused by heavy rainfall occurred in Erath in October 1984, causing damage to homes and businesses and forcing the evacuation of the Erath Hospital. This study and its anticipated outputs, flood control, are in accord with Administration policy. The Vermilion Parish Police Jury is the potential local sponsor.

Fiscal Year 1996 funds are being used to fully fund the reconnaissance phase at full Federal expense. If the reconnaissance report is certified to be in accord with policy, the funds requested for Fiscal Year 1997 will be used to continue into the feasibility phase. The preliminary cost of the feasibility phase is $2,200,000, which will be shared on a 50-50 basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$2,385,000
Reconnaissance Phase (Federal)	185,000
Feasibility Phase (Federal)	1,100,000
Feasibility Phase (Non-Federal)	1,100,000

The reconnaissance phase is scheduled for completion in September 1996. The feasibility study completion date is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Black Bayou Diversion	442,000	280,000	62,000	100,000	0

The Black Bayou Diversion, Louisiana study will address measures to provide drainage out of the lower Mermentau River basin in the interest of flood control and environmental restoration. Flooding in the area is due to subsidence, sea level rise, and upstream drainage improvements and land clearing. Local interests believe that measures to reduce the stages in the lower Mermentau River basin will restore the ability of wetland areas to regenerate, as well as reduce flooding in rural areas. Similar drainage measures were investigated in the Grand and White Lakes Water Management study completed in 1993. At that time, the flood control benefits attributable to the project did not outweigh the cost. For this reason, the major focus of the study will be on environmental restoration, although environmental benefits will be difficult to predict and quantify. Similar drainage structures of a small scale are also being considered for implementation under the Coastal Wetlands Planning, Protection and Restoration Act. The Louisiana Department of Natural Resources is the non-Federal sponsor for projects under this act. The study area includes the parishes of Calcasieu and Cameron, with a total population of 177,394 (1990). The major urban area in the vicinity of the study area is the city of Lake Charles, Louisiana with a population of 70,580 (1990). The study area is in the lower Mermentau River basin which comprises 500,000 acres. Habitats in this area are open water, impounded marsh, agriculture, urban development, natural marsh, swamp forests, natural ridge and upland forest. About 74,000 acres of wetlands were lost between 1930 and 1990. These loss trends are continuing. Corps' projects in the area have been associated with contributing to the degradation of the environment. Support for this project is evidenced by the numerous letters from state and local interests. This study and its anticipated outputs are in accord with Administration policy. The Louisiana Department of Natural Resources (LDNR) is the potential local sponsor. LDNR has committed to cost sharing on other hydrologic restoration projects in the lower Mermentau Basin under the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA). LDNR has also requested the CWPPRA Task Force to fund a study to identify a comprehensive plan to lower water levels in the lower Mermentau Basin in the interest of environmental restoration. The reconnaissance study is scheduled for completion in January 1997.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Jefferson Parish	4,710,000	1,810,000	593,000	593,000	1,714,000

Jefferson Parish is located along the Mississippi River in southeast Louisiana. The parish is part of the major urban center in the New Orleans Metropolitan Statistical Area. Jefferson Parish has a population of 448,300 (1990). The study area is relatively flat and divided into three hydrologically independent areas. Most of the developed areas are protected by levee systems from river and hurricane flooding and drained by pumps which discharge primarily into estuarine water bodies such as Lake Pontchartrain and Barataria Bay. The leveed areas are divided by natural and man-made barriers into many sub-basins which are webbed with drainage canals which terminate at pumping stations. Heavy rainfall has produced major floods in Jefferson Parish in 6 of the last 12 years. Between 1977 and 1986, 22,000 claims amounting to $122,000,000 were filed with Federal Emergency Management Agency. In April 1980, May 1980, April 1983, November 1989, and May 1995, Jefferson Parish was declared a Federal disaster area due to extensive rainfall flooding. Local interests have made substantial improvements to the flood control systems but have not kept pace with the increasing severity of the problem. The frequency and widespread impact of the floods warrant Federal investigation of possible solutions. A feasibility study will provide the opportunity to address potential solutions to flood damage reduction. Possible alternative solutions to the flooding problems include: drainage canal improvements, removal of canal obstructions, and increased pumping capacities. For sub-basins within existing Federal levee projects and for which the non-Federal sponsor accepted responsibility for evacuation of water resulting from all rain falling within the levees, the study report will recommend cost sharing based upon project benefits, applicable Administration policies, and in consideration of the contractual obligations of the sponsor in connection with previous Civil Works projects. The Feasibility Cost Sharing Agreement was signed by Jefferson Parish officials on 26 January 1994.

Fiscal Year 1996 funds are being used to continue the feasibility phase. Fiscal Year 1997 funds will be used to continue the feasibility phase. The preliminary estimate of the cost for the feasibility phase is $8,100,000 shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$8,760,000
Reconnaissance Phase (Federal)	660,000
Feasibility Phase (Federal)	4,050,000
Feasibility Phase (Non-Federal)	4,050,000

The reconnaissance phase was completed in January 1994. The feasibility study completion date is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Lafayette Parish	2,826,000	641,000	173,000	200,000	1,812,000

Lafayette Parish is located along the Vermilion River in southwest Louisiana. The study area encompasses the flood prone areas of Lafayette Parish in the Vermilion River Basin. The Vermilion River is the major stream within the study area and has an estimated drainage area of 561 square miles. Significant floods have occurred in Lafayette Parish in 1922, 1927, 1940, 1946, 1953, 1955, 1959, 1961, 1964, 1966, 1969, 1971, 1980, 1985, 1991, 1993, and most recently in 1995. The purpose of the study is to investigate the feasibility of measures to alleviate flooding problems associated with rainfall and Vermilion River stages. Lafayette Parish officials requested that the Corps investigate measures to prevent flooding of residential, commercial, and industrial properties in Lafayette Parish, Louisiana. Potential alternative solutions of the flooding problems include: channel improvements, removal of channel obstructions, diversions, detentions, levees, and pump stations. The potential local sponsor is the Louisiana Department of Transportation and Development.

Fiscal Year 1996 funds are being used to continue into the feasibility phase. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase. The preliminary estimate of the cost for the feasibility phase is $4,370,000 shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$5,011,000
Reconnaissance Phase (Federal)	641,000
Feasibility Phase (Federal)	2,185,000
Feasibility Phase (Non-Federal)	2,185,000

The reconnaissance phase is scheduled for completion 31 March 1996. The feasibility study completion date is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Orleans Parish	2,700,000	1,220,000	177,000	300,000	1,003,000

Orleans Parish is located along the Mississippi River in southeast Louisiana. The parish is part of the major urban center in the New Orleans Metropolitan Statistical Area. Orleans Parish and the City of New Orleans have coincident boundaries and a population of 497,000 (1990). The study area is relatively flat and divided into two hydrologically independent areas. Most of the developed areas are protected by levee systems from river and hurricane flooding and drained by pumps which discharge primarily into estuarine water bodies such as Lake Pontchartrain, Lake Borgne, and Barataria Bay. The leveed areas are divided by natural and man-made barriers into many sub-basins which are webbed with drainage canals which terminate at pumping stations. Heavy rainfall has produced major floods in Orleans Parish in 6 of the last 12 years. Between 1977 and 1986, nearly 18,000 claims were filed with the Federal Emergency Management Agency in Orleans Parish, totaling about $75,000,000 in covered losses to structures and contents. In April 1980, May 1980, April 1983, November 1989, and May 1995, Orleans Parish was declared a Federal disaster area due to excessive rainfall flooding. Local interests have made substantial improvements to the flood control systems but have not kept pace with the increasing severity of the problem. The frequency and widespread impact of the floods warrant Federal investigation of possible solutions. A feasibility study will provide the opportunity to address potential solutions to flood damage reduction. Possible alternative solutions to the flooding problems include: drainage canal improvements, removal of canal obstructions, and increased pumping capacities. For sub-basins within existing Federal levee projects and for which the non-Federal sponsor accepted responsibility for evacuation of water resulting from all rain falling within the levees, the study report will recommend cost sharing based upon project benefits, applicable Administration policies, and in consideration of the contractual obligations of the sponsor in connection with previous Civil Works projects. The Sewerage and Water Board of New Orleans signed the Feasibility Cost Sharing Agreement in June 1994.

Fiscal Year 1996 funds are being used to continue the feasibility phase. Fiscal Year 1997 funds will be used to continue the feasibility phase. The preliminary estimate of the cost for the feasibility phase is $4,080,000, shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$4,740,000
Reconnaissance Phase (Federal)	660,000
Feasibility Phase (Federal)	2,040,000
Feasibility Phase (Non-Federal)	2,040,000

The reconnaissance phase was completed in June 1994. The feasibility study completion date is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
St. Tammany Parish	2,407,000	400,000	107,000	200,000	1,700,000

St. Tammany Parish covers approximately 854 square miles and is located in southeast Louisiana with a population of 141,561 (1990). The parish includes the cities of Mandeville, Slidell, Covington, Abita Springs, and Madisonville and the unincorporated urban areas of Lacombe and Lewisburg. These areas are mostly unleveed, depend on gravity drainage, and are subject to the effects of interior rainfall flooding and riverine flooding. Coastal areas are also subject to flooding from high stages in Lake Pontchartrain due to storms and hurricanes and the combination of these other factors. The majority of the populated areas are located in the lower one-third of the parish. Major floods caused by heavy rainfall have occurred four of the last fifteen years in St. Tammany Parish. During May 8-10, 1995, thousands of homes in the Slidell area were inundated as a result of 22.9 inches of rain falling in a 48 hour period. On April 11, 1995, approximately one hundred homes suffered flood damage as a result of about 7 inches of rain falling in six hours. About two dozen homes were flooded in July 1993 due to 5 inches of rain in three hours. Widespread residential and commercial flooding resulted from a storm on 5-8 April 1983 which dumped 8.7 inches of rain on Slidell over a ten hour period. Major flooding from the Pearl River was experienced in northern and eastern Slidell in 1979, 1980, and 1983. Flooding in lower St. Tammany Parish has also resulted from Hurricanes Betsy (1965), Camille (August 1969), and Juan (October-November 1985). Flooding also occurred in Mandeville as a result of the 8-10 May 1995 event and the August 1988 event. Homes which had no previous history of flooding were inundated during these events. Water quality improvements will be investigated as an integral component of the flood control improvements. Alternative solutions include levees, diversions, and drainage canal improvements. The St. Tammany Parish Police Jury indicated verbally on 30 July 1993 that the parish is willing to cost-share in the feasibility study as local sponsor if the reconnaissance study is favorable and funds are available at that time.

Fiscal Year 1996 funds are being used to fully fund the reconnaissance phase at full Federal expense. If the reconnaissance report is certified to be in accord with policy, the funds requested for Fiscal Year 1997 will be used to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $3,800,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$4,307,000
Reconnaissance Phase (Federal)	507,000
Feasibility Phase (Federal)	1,900,000
Feasibility Phase (Non-Federal)	1,900,000

The reconnaissance phase is scheduled for completion in September 1996. The feasibility study completion date is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
West Shore - Lake Pontchartrain	500,000	0	371,000	129,000	0

The West Shore - Lake Pontchartrain, Louisiana study will address hurricane flooding problems in St. Charles Parish west of the Bonnet Carre' Floodway, St. John the Baptist Parish and St. James Parish. The main population centers in the study area are LaPlace and Reserve. A preliminary study of the area, completed in 1987, indicated significant hurricane flooding problems and a high level of interest in solving them; however, an economically justifiable plan could not be developed due to the high cost of levee construction that is associated with the soil conditions in the area. The need for a new study results from increased development in the study area. Also, improvements in geotextile technology, along with more detailed soils data, should produce measures to significantly reduce the first cost of the project. Major flooding in the area has occurred as a result of Hurricanes Betsy (1965) and Juan (1985), and as a result of the 1973 flood on the Mississippi River. Damages totaled $1,000,000 for Hurricane Betsy, $950,000 for the 1973 flood, and $4,000,000 for Hurricane Juan. Population in the study area has been increasing with populations of 25,500 in 1960; 30,300 in 1970; 40,600 in 1980; and 47,700 in 1990. There are approximately 3,000 residential structures in the study area vulnerable to hurricane flooding. Population and potential damages are expected to continue to grow due to the lack of undeveloped land in the New Orleans area. Average annual damages are estimated to be $4,000,000. The Pontchartrain Levee District indicated its willingness to cost share the feasibility study in May 1995. Support for this project is evidenced by the numerous letters from state and local governments and from Congressmen. This study and its anticipated outputs are in accord with Administration policy. The reconnaissance study is scheduled to be completed in March 1997, which is 12 months after initiating the study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Missouri					
Chesterfield	1,307,000	241,000	66,000	285,000	715,000

The Monarch-Chesterfield levee system is located along the right bank of the Missouri River between river miles 46.0 and 38.5. The length of the existing 100-year levee system is 11.5 miles and protects approximately 4,240 acres. During the flood of 1993, the existing levee failed causing flood damages and other losses in excess of $200 million. Approximately 8 feet of water covered the valley area, which forced businesses to close and residents to evacuate. Interstate 64/U.S. 40, which has an average daily through traffic volume of approximately 46,000 cars, was closed for approximately three weeks. The Spirit of St. Louis Airport was closed for approximately 80 days and the aircraft were relocated. The St. Louis County Correctional Institution was evacuated and the inmates were housed in temporary quarters, some for as long as 180 days. Possible solutions to the flooding include increasing the reliability of the existing 100-year levee system or raising the levee system in its current or a modified alignment. This feasibility study and its anticipated outputs, flood damage prevention, are in accord with Administration policy. The Monarch-Chesterfield Levee District officials have indicated their intent to cost share the feasibility study.

Fiscal Year 1996 funds are being used to fully fund the reconnaissance phase at full Federal expense. If the reconnaissance report is certified to be in accord with policy, the funds requested for Fiscal Year 1997 will be used to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $2,000,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,307,000
Reconnaissance Phase (Federal)	$307,000
Feasibility Phase (Federal)	$1,000,000
Feasibility Phase (Non-Federal)	$1,000,000

The reconnaissance phase is scheduled for completion in July 1996. The feasibility study completion date is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Festus and Crystal City	906,000	241,000	65,000	50,000	550,000

The study area is the drainage boundary of Plattin Creek and its tributaries. Plattin Creek basin is located on the southeastern edge of Missouri, approximately 30 miles south of the city of St. Louis, Missouri. Flooding on Plattin Creek occurs from the Mississippi River backwater and the Plattin Creek headwater. The 1993 floods caused damages to commercial and residential structures in Festus and Crystal City disabling the Festus and Crystal City sanitary treatment plant and inundating Highway 61/67 through Festus. High water and threatening floods are nearly an annual occurrence with damaging floods occurring in 1973, 1979, 1982, 1985, 1986, 1993, and 1995. A probable solution to the flooding includes constructing a levee. This feasibility study and its anticipated outputs, flood damage prevention, are in accord with Administration policy. Festus and Crystal City officials have indicated their intent to cost share in the feasibility study.

Fiscal Year 1996 funds are being used to fully fund the reconnaissance phase at full Federal expense. If the reconnaissance report is certified to be in accord with policy, the funds requested for Fiscal Year 1997 will be used to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,200,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,506,000
Reconnaissance Phase (Federal)	$306,000
Feasibility Phase (Federal)	$600,000
Feasibility Phase (Non-Federal)	$600,000

The reconnaissance phase is scheduled for completion in July 1996. The feasibility study completion date is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Lower River Des Peres	1,256,000	241,000	65,000	50,000	900,000

The Lower River Des Peres study area begins at the confluence of the Mississippi River and River Des Peres, and proceeds northeast approximately 3.2 miles along both banks of the River Des Peres. In 1993, the Mississippi River inundated 691 homes and 200 businesses and caused damages to roads and sewers. This feasibility study and its anticipated outputs, flood damage prevention, are in accord with Administration policy. One probable solution to the flooding includes constructing levees. The Metropolitan St. Louis Sewer District officials have indicated their intent to cost share the feasibility study.

Fiscal Year 1996 funds are being used to fully funded the reconnaissance phase at full Federal expense. If the reconnaissance report is certified to be in accord with policy, the funds requested for Fiscal Year 1997 will be used to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,900,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,206,000
Reconnaissance Phase (Federal)	$306,000
Feasibility Phase (Federal)	$950,000
Feasibility Phase (Non-Federal)	$950,000

The reconnaissance phase is scheduled for completion in July 1996. The feasibility study completion date is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

c. Shoreline Protection Studies: None.

d. Special Studies: None.

e. Comprehensive Studies: None.

f. Project Review Studies: None.

3. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - NEW

a. Navigation: None.

b. Flood Control: None.

c. Shoreline Protection: None.

d. Multiple Purpose Power: None.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
4. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - CONTINUING					
a. Navigation: None.					
b. Flood Control:					
Illinois					
Nutwood Drainage and Levee District	1,360,000	25,000	161,000	100,000	1,074,000

The Nutwood Drainage and Levee District protects 10,360 acres of primarily agricultural land located in Greene and Jersey Counties, Illinois, on the east bank of the Illinois River between River Miles 15.2 and 23.7. The town of East Hardin lies within the project area. An existing Federally constructed levee provides roughly a 20-year level of protection from the Illinois River. The project, authorized by the River and Harbor Act of 1962, provides for the raising of the existing levee and includes modifications for seepage control and additional pumping capacity. When reevaluated in 1984, the project was estimated to cost $6,500,000 yielding a benefit-cost ratio of 1.4 to 1 at the grandfathered interest rate of 3 1/4 percent, but yielded only a benefit-cost ratio of 0.5 to 1 at an interest rate of 8 1/8 percent. The project was subsequently placed in an inactive status. Crop and property damages continue at an average annual rate in excess of $100,000. In the flood of 1993, the levee was breached causing a disruption of traffic on Illinois Route 100/16 for over 3 months. The reconnaissance study will update flood damage data and will reexamine the authorized project to determine if it is justified and meets current day needs. If not, the reconnaissance study will investigate alternative solutions to determine if there is a justified alternative. Both the Illinois Department of Transportation and the Nutwood Drainage and Levee District are interested in seeing remedial measures implemented. One or both may serve as the non-Federal sponsor.

Fiscal Year 1996 funds are being used to fully fund the reconnaissance phase at full Federal expense. If the reconnaissance report is certified to be in accord with policy and current needs can be met by the authorized project, then a preconstruction engineering and design resumption would be the next step. If not, and if the reconnaissance study determines that there is a justified alternative, a cost shared feasibility study would be conducted. In the former case, the funds requested for Fiscal Year 1997 in the amount of $100,000 will be used to resume preconstruction engineering and design. In the latter case, Fiscal Year 1997 funds will be used to continue into a cost-shared feasibility study. In accordance with the cost-sharing and financing concepts being proposed by the Administration for structural flood control, the project cost would be shared on a 50/50 percent basis by Federal and non-Federal interests. The reconnaissance study is scheduled for completion in September 1996. The preconstruction engineering and design completion date is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Louisiana					
Comite River	6,400,000	5,440,000	119,000	200,000	641,000

The Comite River is a major tributary of the Amite River. The Comite River drains an area of 348 square miles of agricultural land and urban development in southeast Louisiana. The Comite River has its confluence with the Amite River in the vicinity of Denham Springs, Louisiana. The Amite River empties into Lake Maurepas 54 miles below its confluence with the Comite River. The maximum flood of record in the Amite River Basin occurred in 1983 and caused approximately $170,000,000 in damages, relative to October 1983 price levels, including $43,800,000 occurring in the Comite River Sub-basin. East Baton Rouge Parish experienced $65,200,000 in damages, with 75 percent of the damages occurring along the Comite River and its tributary system. A feasibility report for the Comite River portion of the Amite River and Tributaries study was initiated in April 1985 and was completed in December 1990. The Comite River Diversion project was authorized at $65,902,000 by the Water Resources Development Act of 1992. After authorization, detailed investigations showed differing field conditions than anticipated during the feasibility study and completed model studies required significant design changes at the Lilly Bayou structure. These changes caused the project cost to exceed the Section 902 limit of $114,509,000, necessitating reauthorization of the project. The current project cost, without an allowance for inflation through the construction period, is $121,600,000. The project will consist of a 12-mile long diversion canal from the Comite River to the Mississippi River with associated control structures and fish and wildlife mitigation areas. The estimated average annual benefits are $13,501,000 with a benefit-cost ratio of 1.14 to 1. Letters of intent dated 3 April 1989 and 14 June 1995 identify the Louisiana Department of Transportation and Development as the local sponsor. A Post-authorization Change Report has been prepared and submitted documenting the design and cost changes.

While the project was authorized for construction in the Water Resources Development Act of 1992, the project cost estimate now exceeds the 902 limit, necessitating reauthorization of the project. In accordance with the cost sharing and financing concepts being proposed by the Administration for structural flood control, the project cost would be shared on a 50/50 percent basis by Federal and non-Federal interests.

Fiscal Year 1996 funds are being utilized to continue preconstruction engineering and design. Fiscal Year 1997 funds will be used to continue preconstruction engineering and design. The preconstruction engineering and design completion date is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
East Baton Rouge Parish	2,100,000	0	667,000	400,000	1,033,000

The study area encompasses major drainage streams in East Baton Rouge Parish. These streams include Beaver Bayou and tributaries, Blackwater Bayou and tributaries, Jones Creek and tributaries, Clay Cut Bayou, Ward Creek and tributaries, Bayou Fountain and tributaries, and Bayou Manchac. In 1983, East Baton Rouge Parish experienced $65,000,000 in flood damages with about $20,000,000 associated with headwater flooding. A feasibility report to develop solutions to reduce flood damages associated with headwater flooding on these streams in East Baton Rouge Parish is scheduled for completion in March 1996. The recommended plan, estimated to cost $133,300,000, consists of channel modifications on Jones Creek and tributaries, Ward Creek and tributaries, Bayou Fountain, Beaver Bayou, and Blackwater Bayou and tributaries. The estimated average annual composite benefits amount to $24,358,000. The estimated composite benefit-cost ratio is 2.4 to 1 based upon the latest economic analysis dated October 1994. The potential local sponsor is the East Baton Rouge Parish Public Works Department, which has repeatedly indicated in meetings its intent to participate in construction of the project.

The project is not authorized for construction. In accordance with the cost sharing and financing concepts being proposed by the Administration for structural flood control, the project cost would be shared on a 50/50 percent basis by Federal and non-Federal interests.

Fiscal Year 1996 funds are being used to initiate the preconstruction engineering and design phase. Fiscal Year 1997 funds will be used to continue the preconstruction engineering and design phase. Preconstruction engineering and design completion date is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
West Bank - East of Harvey Canal	1,679,000	814,000	815,000	50,000	0

The purpose of the project is to provide standard project hurricane level protection for the area east of the Harvey Canal on the west bank of the Mississippi River in the vicinity of New Orleans in Jefferson, Orleans, and Plaquemines Parishes. The area encompasses about 35,000 acres of mostly urban development. While the project's primary purpose is to protect the urban area from hurricane surge inundation, the area protected is not coastal. The project area is approximately 50 miles inland from the Gulf coast, but is extremely vulnerable to hurricane surge due to the low marsh land between the city and the coastline. The feasibility report was completed in August 1994. The recommended project, estimated to cost $153,000,000 with $99,800,000 Federal and $53,200,000 non-Federal, includes construction of a combination of levees and floodwalls, a navigable floodgate in the Harvey Canal, and a 1,000 cubic feet per second modification of an existing pumping station with a rerouted discharge canal. In the protected area, the population is 142,000 (1990 census). The average annual costs are $9,779,000 for the area west of the Algiers Canal and $2,077,000 for the area east of the Algiers Canal. The average annual benefits are $44,549,000 for the area west of the Algiers Canal and $3,220,000 for the area east of the Algiers Canal. The benefit-cost ratio is 4.8 to 1 west of the Algiers Canal and 1.8 to 1 east of the Algiers Canal based upon the latest economic analysis dated September 1995. In a letter, 5 May 1993, the Governor designated the Louisiana Department of Transportation and Development as the non-Federal sponsor for the construction of the Westwego to Harvey Canal Hurricane Protection Project and modifications, which include the Lake Cataouatche area, and the East of Harvey Canal Hurricane Protection Project. The West Jefferson Levee District was named to administer the projects for the Department.

The project is not authorized for construction. Cost sharing for the project will be in accordance with the Water Resources Development Act of 1986.

Fiscal Year 1996 funds are being used to continue preconstruction engineering and design. Fiscal Year 1997 funds will be used to complete the preconstruction engineering and design. The preconstruction engineering and design is scheduled for completion in December 1996.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Jackson Metropolitan Area	8,791,000	0	355,000	2,790,000	5,646,000

The Jackson Metropolitan Area, Mississippi, a primary regional economic center, has major flood problems attributable to the Pearl River. The flood of record occurred in April 1979 causing an estimated $300,000,000 in damages. The draft feasibility report was distributed for public review in January 1996. The expected recommended project, estimated to cost $102,307,000, includes construction of a 33-mile comprehensive levee system that would provide protection from Pearl River floods up to the flood of record. The average annual benefits amount to $13,912,000, all for flood control, and the benefit-cost ratio is 1.5 to 1 based upon the latest economic analysis. The project sponsor is the Pearl River Basin Development District, and the Feasibility Cost-Sharing Agreement was executed September 1991.

The project is not authorized for construction. In accordance with the cost sharing and financing concepts being proposed by the Administration for structural flood control, the project cost would be shared on a 50/50 percent basis by Federal and non-Federal interests.

Fiscal Year 1996 funds will be used to initiate preconstruction engineering and design. The funds requested for Fiscal Year 1997 will be used to continue preconstruction engineering and design. The preconstruction engineering and design completion date is being determined.

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Mississippi River-Gulf Outlet, Louisiana (Continuing)

LOCATION: The project is located in the southeastern portion of Louisiana, east of the Mississippi River. It is a deep draft seaway canal extending for approximately 76 miles in a southeasterly direction from the city of New Orleans to the Gulf of Mexico.

DESCRIPTION: The plan of improvement consists of four basic items: (1) a completed channel extending from the Inner Harbor Navigation Canal to the minus 38-foot contour in the Gulf of Mexico; (2) completed jetties and dikes along the channel in Breton Sound; (3) a new lock with connecting channels is unprogrammed pending a decision to initiate construction; however, planning for the shiplock is continuing; and (4) foreshore protection along the north and south side of the ship channel extending from the Inner Harbor Navigation Canal to the end of the hurricane protection levee. Foreshore protection is completed along the south bank, east of Bayou Bienvenue to the end of the hurricane protection levee, and, west of Bayou Bienvenue to the intersection of the MRGO and GIWW. Completion of remaining foreshore protection along the MRGO is unprogrammed until need arises.

AUTHORIZATION: River and Harbor Act of 1956, Water Resources Development Act of 1976, and the Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 4.0 to 1 at 2-5/8 percent.

TOTAL BENEFIT - COST RATIO: 4.2 to 1 at 2-5/8 percent.

INITIAL BENEFIT - COST RATIO: 1.6 to 1 at 2-5/8 percent (Fiscal Year 1961).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available draft evaluation report submitted in April 1982 at 1981 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost (Corps of Engineers)				$599,000,000			
Programmed Construction			$114,600,000				
Unprogrammed Construction			484,400,000				
Estimated Federal Cost (U.S. Coast Guard)				45,000			
Programmed Construction			0				
Unprogrammed Construction			45,000				
Estimated Non-Federal Cost				347,000,000			
Programmed Construction			8,811,000				
Cash Contributions		0					
Other Cost		8,811,000					
Estimated Non-Federal Cost							
Unprogrammed Construction			338,189,000				
Cash Contributions		0					
Other Cost		338,189,000					
Total Estimated Programmed Construction Cost				123,411,000			
Total Estimated Unprogrammed Construction Cost				822,634,000			
Total Estimated Project Cost				946,045,000			

STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
MRGO Unit	90	Indefinite[1]
Shiplock Unit	0	Indefinite[2]
Entire Project	75	Indefinite

[1] Schedule for completion of foreshore protection is indefinite until need arises.

[2] Schedule for completion of the shiplock unit is indefinite pending a decision to initiate construction (see other information paragraph).

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1995	101,696,000	
Conference Allowance for FY 1996	3,200,000	
Allocation for FY 1996	1,823,000[1]	
Allocations through FY 1996	103,519,000	17
Allocation Requested for FY 1997	3,100,000	18
Programmed Balance to Complete after FY 1997	7,981,000	
Unprogrammed Balance to Complete after FY 1997	484,400,000	

PHYSICAL DATA

Channels:
- Channel, 36 feet deep by 500 feet wide from Inner Harbor Navigation Canal to Chandeleur Islands; 66 miles
- Channel, 36 feet deep by 500 feet wide from Mississippi River to the Gulf Outlet
- Eased Entrance Channel widens gradually from 500 feet at Chandeleur Islands to 600 feet at the 38 foot contour in the Gulf of Mexico; 9.38 miles
- Turning Basin, vicinity of Inner Harbor Navigation Canal

Locks:
- New Lock, 110 feet wide by 40 feet deep by 1,200 feet long

Levees and Floodwalls: Foreshore Protection - 23.0 miles
- Levees - 6.0 miles

Relocations:
- Roads (Completed)
- High Level Bridge, Louisiana Highway
- No. 47 (Paris Road Bridge)(Completed)
- Low Level Bridge, St. Claude Avenue
- Semi-High Level Bridge, Claiborne Avenue
- Dikes in Breton Sound:
- Northeast Retention Dike to Mile 20.2
- Southwest Retention Dike to Mile 14.8

JUSTIFICATION: New Orleans is the gateway to the great system of inland waterways of the central valley of the nation. Adequate outlets to the Gulf of Mexico are essential to provide economical transportation to this area. The project provides an additional outlet to the Gulf that is shorter than the Mississippi River route and one which is not subject to as large stage fluctuations as is the river. The improvement provides a tidewater outlet and harbor sufficiently spacious for dispersion of docks and cargo-handling facilities, thus permitting flexible operations of the inland and seagoing commerce which is utilizing the river, the tidewater canal, and the Gulf Intracoastal Waterway. The project provides savings in sailing time and ship turnaround time, reduction in navigation hazards, and relief from congestion.

The existing Inner Harbor Navigation Canal Lock passes barge traffic between the Mississippi River and the Gulf Intracoastal Waterway at New Orleans and is a vital link in the Gulf Intracoastal Waterway system. The lock also is the connecting link for ship traffic between the Mississippi River-Gulf Outlet and the Mississippi River at New Orleans. The existing lock has a maximum practical capacity for barge traffic of approximately 30,000,000 tons. The number of ships locked from 1970 through 1995 averaged about 191 per year. This is a reduction in ship lockage since 1961, and

[1] Reflects $265,000 reduction assigned as savings and slippage and $1,112,000 reprogrammed from the project.

is due in part to the development of the Mississippi River-Gulf Outlet channel and the inadequacy of the Inner Harbor Navigation Canal Lock for ship traffic. Studies indicate that, with a new lock, barge traffic would generally be expected to increase to about 45,000,000 tons by 2035 and that the number of ship lockage by 2035 would be approximately 1,800. Average annual benefits are as follows:

Annual Benefits	Amount
Navigation	$ 43,300,000
Vehicular	21,000,000
Advanced Replacement of Bridges	3,200,000
Savings to Existing Project	1,700,000
Total	$ 69,200,000

COMMERCE:

Commodity	Mississippi River Tons [1] 1976	Mississippi River Tons [1] 1990 [3]	Gulf Outlet Tons [2] 1976	Gulf Outlet Tons [2] 1990 [3]
Grain	7,223,588	24,165,000	89,433	5,000
Coal	7,808,629	35,792,000	1,373,964	58,000
Crude Petroleum	19,279,316	14,121,000	0	0
Petroleum Products	10,389,615	11,159,000	93,801	39,000
Sulphur	3,618,158	2,299,000	0	48,000
Primary Metal Products	5,261,298	2,262,000	120,082	680,000
Industrial Chemicals	1,371,786	3,271,000	420,622	81,000
Agricultural Chemicals	851,659	3,509,000	612,848	553,000
Miscellaneous Metallic Ores and Concentrates	127,458	1,298,000	438,548	362,000
Miscellaneous Nonmetallic Minerals and Cement Products	181,538	1,226,000	702,017	313,000
Wood and Paper Products	1,054,604	1,133,000	720	4,000
Food and Kindred Products	24,963,264	2,285,000	111,735	11,000
Miscellaneous Cargo	6,632,274	5,737,000	9,369	427,000
Subtotal	88,763,187	108,257,000	3,973,139	2,581,000
Through traffic	143,850,863	178,993,000	2,998,509	4,478,000
Total	232,614,050	287,250,000	6,971,648	7,059,000

The average tonnage through the Inner Harbor Navigation Canal Shiplock from 1979 thru 1995 is 23,035,804 tons; the deep draft savings per ton for dry bulk is $.40, and for general cargo is $1.85. The shallow draft savings per ton is $1.30 for all cargo.

The size of ships expected in the future would carry up to 60,000 DWT (deadweight tons) for dry bulk and 40,000 DWT for general cargo.

FISCAL YEAR 1997: The requested amount will be applied as follows:

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[1] Total tonnage Mississippi River, New Orleans to Mouth of Passes, Oceangoing and Internal. This tabulation is for Mile 106 to the Gulf which the standard New Orleans reach of the Mississippi River used in the Waterborne Commerce Statistics.

[2] Mississippi River-Gulf Outlet, LA Oceangoing and Internal.

[3] Last year available.

SHIPLOCK UNIT:

Planning, Engineering and Design	$3,100,000
Total	$3,100,000

NON-FEDERAL COST: The project will be cost shared in accordance with the provisions of Section 844 of the Water Resources Development Act of 1986. The costs of the shiplock unit will be apportioned between general cargo navigation and inland navigation. Those costs assigned to inland navigation will be funded 50 percent from the Inland Waterway Trust Fund and 50 percent from the general fund of the U.S. Treasury. Those costs assigned to general cargo navigation will be cost shared in accordance with Section 101 of the Act, that is, if incrementally economically justified, the non-Federal interests will provide lands, easements, rights of way, dredged material disposal areas and relocations; pay during construction 25 percent of the cost of general cargo navigation features to a depth of 45 feet; and pay for 50 percent of the cost of general cargo navigation features at a depth greater than 45 feet.

The apportionment of cost is deferred pending resolution of the lock location and the determination by the Assistant Secretary of the Army, Civil Works, of use patterns as required by Section 844. The non-Federal sponsor must comply with the following requirements:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation and Replacement Costs
Mississippi River Gulf Outlet (other than shiplock unit)		
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$ 8,811,000	$ 65,000
Shiplock Unit		
Provide lands, easements, rights-of-way, and dredged material disposal areas.	42,000,000	
Modify or relocate utilities and facilities (except railroad bridges) where necessary for construction of the project.	296,189,000	
Make an additional cash payment to bring to 25 percent the total non-Federal share of costs allocated to general navigation to a depth of 45 feet or less.	To be determined	
Make an additional cash payment to bring to 50 percent the total non-Federal share of costs allocated to general navigation at a depth greater than 45 feet.	To be determined	
Pay an additional 10 percent of costs allocated to general navigation, less an amount equal to the value of lands, easements, rights of way, dredged material disposal areas, and utility and facility relocations.	0	
Total Non-Federal Costs	$347,000,000	$ 65,000

STATUS OF LOCAL COOPERATION: Assurances of local cooperation furnished by the Board of Commissioners of the Port of New Orleans were accepted on behalf of the United States on 29 August 1957. The Board of Commissioners executed amended assurances covering the provisions of the Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, which were accepted on behalf of the United States on 21 April 1975. Supplemental assurances reflecting the changes made necessary by enactment of the Water Resources Development Act of 1976 were requested on 11 September 1978. By letter of 18 September 1978, local interests stated that they could not respond to our requests because plans for the lock at the Inner Harbor Navigation Canal site were in a very preliminary stage. In November 1983, the Board of Commissioners was informed of the selected plan and its costs, including their share, based on traditional cost sharing. By letter of 17 February 1984, the Board stated that it could not support the plan at that time because of the uncertainty of cost sharing and the financial situation of the State of Louisiana. However, by letter dated 11 February 1985, the Governor of Louisiana provided the necessary assurances to proceed with the coordination of an appropriate course of action for public involvement and to process the Evaluation Report. The public involvement program is progressing consistent with the Evaluation Report schedule. See Other Information paragraph regarding the schedule for the Evaluation Report.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $599,000,000 is an increase of $15,000,000 from the latest estimate ($584,000,000) presented to Congress (FY 1996). This change includes the following item:

Item	Amount
Price Escalation on Construction Features	$15,000,000
Total	$15,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 14 May 1976, and published in the Federal Register on 21 May 1976. A separate statement is being prepared for the shiplock unit. The draft statement for the shiplock unit is scheduled for submission to the EPA in April 1996, and the final statement is scheduled to be submitted to EPA in November 1996.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1957 and funds to initiate construction were appropriated in Fiscal Year 1958.

The existing lock was completed in 1923 by non-Federal interests, and had been leased by the Federal Government since 1944. On 1 July 1986, the lock, adjacent land, and facilities were purchased from the Board of Commissioners of the Port of New Orleans for $3,800,000. By purchasing the lock, the Corps received fee title to the lock and appurtenances with operation and maintenance responsibility for the St. Claude and Florida Avenue bridges transferring to the Board of Commissioners of the Port of New Orleans.

President Carter, as a result of the review of water resource projects in April 1977, recommended that the site for the proposed shiplock be changed from the recommended lower site in St. Bernard Parish to the Inner Harbor Navigation Canal in Orleans Parish, and that further study be conducted to determine whether repair or replacement (expansion) is needed of the existing lock at the existing site. It was further recommended that, if replacement and expansion are deemed necessary, special care should be taken to minimize dislocation and disruption of residents near the site. A draft Evaluation Report documenting the Phase I studies, including the tentatively selected plan (40 by 110 by 1200 foot lock located adjacent to

and on the east side of the existing lock) was submitted for review in April 1982. A final report was never prepared due to lack of support from a local sponsor. In February 1985 the State of Louisiana expressed its intent to provide the assurances of local cooperation at the appropriate time, contingent upon availability of funds and the state's priorities. At that time, the Evaluation Study was resumed.

In response to the resumption of the Evaluation Study, the St. Bernard Parish Police Jury, on 10 April 1987, passed a resolution opposing the siting of the new lock in St. Bernard Parish. On 30 August 1988, state elected officials representing the Lower Ninth Ward expressed opposition to the lock at the IHNC site. On 18 April 1989, the St. Bernard Parish Police Jury passed a resolution unanimously opposing a new lock and connecting channel at Violet in the Parish.

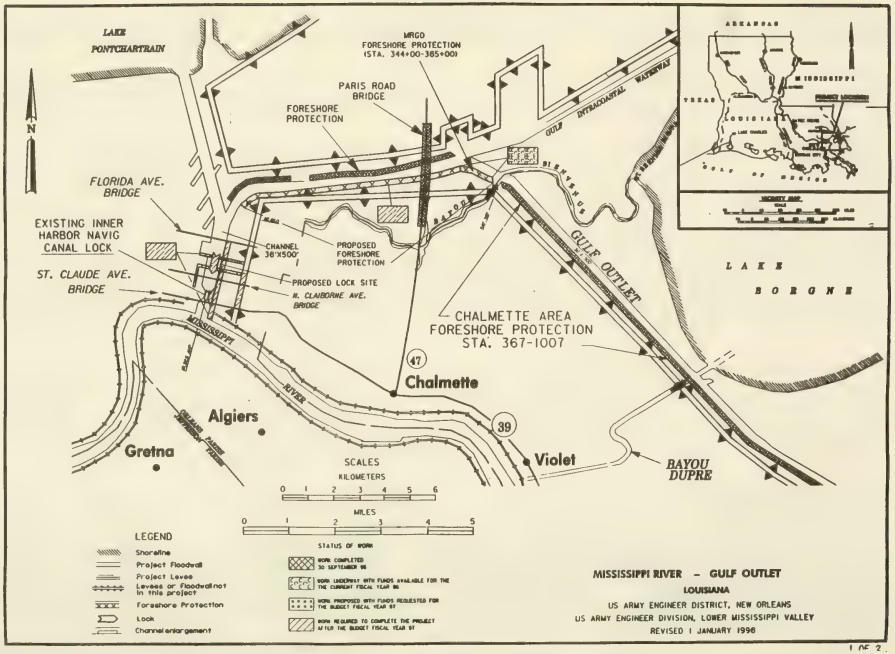
Based on Congressional committee guidance in the Fiscal Year 1991 Energy and Water Development Appropriations Bill, an Open Planning Process was adopted in an attempt to build consensus among the major stakeholders for siting the shiplock at the IHNC site. The Corps and the Port of New Orleans were directed to ". . . develop a comprehensive plan to identify and mitigate to the maximum extent practicable, any adverse social and cultural impacts of the project." The plan will include ". . . measures to provide adequate housing, street circulation and enhanced neighborhood amenities to insure the communities adjacent to the project remain as complete, liveable neighborhoods during and after construction of the project." The legislation specifically directed the Corps to strictly follow Federal historic preservation policies in evaluating the impact of lock replacement. Also expected is full compliance with the provisions of the 1986 Water Resources Development Act, which requires "full participation of members of minority groups living in the affected areas" in any work related to the replacement of the lock. Finally, the legislation directed the Corps to give "maximum consideration to lock replacement alternatives which minimize residential and business disruption while meeting the goal of improving waterborne commerce. Neighborhood groups, navigation interests, affected businesses, local, governmental officials, and the Port of New Orleans comprise various committees that are discussing all the major aspects of the various alternatives being studied at this site. The Corps of Engineers and the Port of New Orleans are providing the engineering, economic, and social analyses to these committees for their deliberations.

The final Evaluation Report, based on the Open Planning Process, is scheduled for completion in December 1996. The Evaluation Report will include designs of various lock alternatives to be constructed at the Industrial Canal site. The alternatives include different sizes (shallow and deep draft), bridge configurations, construction methods and locations with respect to the existing lock. The construction methods involve conventional, cast-in-place construction and prefabricated, float-in construction. The different locations include: adjacent to the east of the existing lock; adjacent to and west of the existing lock; at the exact site of the existing lock; and in the Industrial Canal north of the existing lock. The latter location is the only one that has the potential to obtain consensus from all affected stakeholders. The Evaluation Report has focused on this location in more detail.

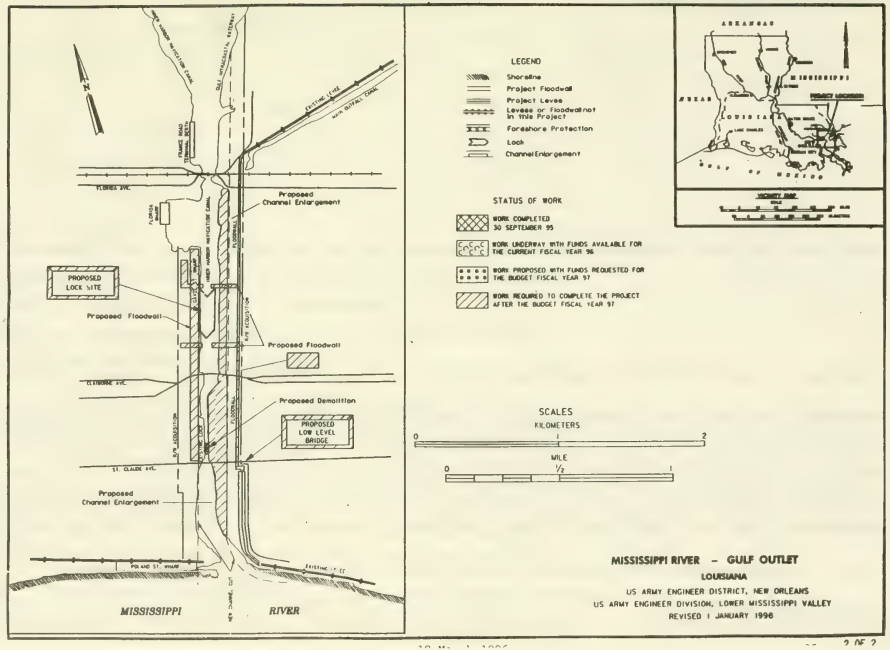
The existing Florida Avenue bridge (vehicular and railroad) has been assumed in our studies to be replaced by others. The vehicular bridge was scheduled to be replaced by the State of Louisiana. They had preliminary designs for a high level bridge and had partial funding (about $32 million) already appropriated by the State Legislature. Final plans were scheduled to be completed by mid-1996. However, they have decided that this bridge is not in the State's interest and has told the City of New Orleans (City) that, construction of a new bridge at Florida Avenue would be their responsibility. The State has told the City that $32 million is available for their use in constructing a bridge at Florida Avenue. Efforts are underway to coordinate with the City for construction of a new bridge (not necessarily a high-rise) at Florida Avenue. The railroad bridge has been approved to be replaced under the Truman Hobbs authority. The Coast Guard recommended that the existing railroad bridge is a hazard to navigation, thereby justifying the use of Truman Hobbs. The New Orleans Dock

Board will be responsible for the design and replacement of the railroad bridge. They began design at the end of 1992 and construction is scheduled to begin in October 1996.

The Senate Report accompanying the Fiscal Year 1994 Energy and Water Development Appropriations Act included language recommending examination of all alternatives for removing the siphon near Florida Avenue bridge, the convening of all interests to determine best course of action and preparation of a report on this matter. The Evaluation Report assumes that the siphon will be removed prior to our initiating construction on this project, at no cost to the Federal Government. Section 305 of H.R. 4422, the House version of the Fiscal Year 1995 Coast Guard Authorization Bill, states that the removal of the siphon, an appurtenant structure to the bridge, will be part of the Truman Hobbs Act.


LAKE PONTCHARTRAIN
N
MRGO FORESHORE PROTECTION (STA. 344+00-385+00)
PARIS ROAD BRIDGE
FORESHORE PROTECTION
GULF INTRACOASTAL WATERWAY
FLORIDA AVE. BRIDGE
EXISTING INNER HARBOR NAVIG CANAL LOCK
ST. CLAUDE AVE. BRIDGE
CHANNEL 38'X500'
PROPOSED FORESHORE PROTECTION
PROPOSED LOCK SITE
N. CLAIBORNE AVE. BRIDGE
BAYOU BIENVENUE
GULF OUTLET
CHALMETTE AREA FORESHORE PROTECTION STA. 367-1007
LAKE BORGNE
MISSISSIPPI RIVER
47
Chalmette
39
Algiers
Gretna
Violet
BAYOU DUPRE
GRAND PASSE
ARKANSAS
MISSISSIPPI
TEXAS
LOUISIANA
LAKE CHARLES
BATON ROUGE
NEW ORLEANS
GULF OF MEXICO
VICINITY MAP
SCALES
KILOMETERS
0 1 2 3 4 5 6
MILES
0 1 2 3 4 5
LEGEND
Shoreline
Project Floodwall
Project Levee
Levees or Floodwall not in this project
Foreshore Protection
Lock
Channel enlargement
STATUS OF WORK
WORK COMPLETED TO SEPTEMBER 98
WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR 99
WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR 99
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR 99
MISSISSIPPI RIVER - GULF OUTLET
LOUISIANA
US ARMY ENGINEER DISTRICT, NEW ORLEANS
US ARMY ENGINEER DIVISION, LOWER MISSISSIPPI VALLEY
REVISED 1 JANUARY 1998

1 OF 2



MISSISSIPPI RIVER - GULF OUTLET

LOUISIANA

US ARMY ENGINEER DISTRICT, NEW ORLEANS

US ARMY ENGINEER DIVISION, LOWER MISSISSIPPI VALLEY

REVISED 1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Mississippi River Ship Channel, Gulf to Baton Rouge, Louisiana (Continuing)

LOCATION: The project is located in the southeast portion of Louisiana below Baton Rouge, Louisiana, consisting of the Mississippi River and its major outlet to the Gulf of Mexico, Southwest Pass.

DESCRIPTION: The authorized project will provide more efficient deep-draft navigation access to the New Orleans and Baton Rouge reaches of the Mississippi River via Southwest Pass by enlarging the existing channel to a project depth of 55 feet; enlarging the adjacent channel along the left descending bank in New Orleans to a 40-foot depth, providing a turning basin at Baton Rouge, and providing training works in the passes and in four crossings between New Orleans and Baton Rouge to reduce maintenance. Construction of mitigation measures is required due to the saltwater intrusion caused by the deeper channel. The scheduled work includes enlargement of the existing channel to an initial depth of 45 feet in the reach from the Gulf of Mexico to Mile 232.4 above New Orleans, the 40-foot enlargement in New Orleans Harbor, and construction of the mitigation works. The unprogrammed work includes enlargement of the 45-foot channel to 55 feet in the reach from the Gulf of Mexico to Mile 232.4, enlargement of the existing 40-foot channel to 55 feet from Mile 232.4 to Mile 233, construction of a turning basin at Baton Rouge, and training works in the passes.

AUTHORIZATION: Supplemental Appropriations Act of 1985, Water Resources Development Acts of 1986 and 1988, and the Energy and Water Development Appropriations Act of 1993.

REMAINING BENEFIT - REMAINING COST RATIO: 7.0 to 1 at 8-1/8 percent.

TOTAL BENEFIT - COST RATIO: 11.1 to 1 at 8-1/8 percent.

INITIAL BENEFIT - COST RATIO: 8.1 to 1 at 8-1/8 percent (FY 1985).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation approved in July 1981 at 1980 price levels.

SUMMARIZED FINANCIAL DATA

				STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Appropriation Requirement (Corps of Engineers)			161,000,000	Phase I (Gulf-Mile 181, 45')	95	Being Determined[1]
Programmed Construction		34,067,000				
Unprogrammed Construction		126,933,000		Phase II (Mile 181-Baton Rouge, 45')	100	Dec 1994
Estimated Appropriation Requirement (US Coast Guard)			1,200,000	Phase III (Gulf-Baton Rouge, 55')	0	Indefinite[2]
Programmed Construction		0				
Unprogrammed Construction		1,200,000		Entire Project	30	Indefinite[2]
Estimated Total Appropriation Requirement			162,200,000			
Programmed Construction		34,067,000				
Unprogrammed Construction		128,133,000				
Future Non-Federal Reimbursement			944,000			
Programmed Construction		944,000				
Unprogrammed Construction		0				
Estimated Federal Cost (Ultimate) (Corps of Engineers)			161,256,000			
Programmed Construction		33,123,000				
Unprogrammed Construction		128,133,000				
Estimated Non-Federal Cost (Ultimate)			390,944,000			
Programmed Construction		20,688,000				
Cash Contributions	4,911,000					
Other Costs	14,833,000					
Reimbursements	944,000					
Navigation	944,000					
Unprogrammed Construction		370,256,000				
Cash Contributions	125,349,000					
Other Costs	244,907,000					
Reimbursements	0					
Navigation	0					

[1] Applies only to initial mitigation work. Completion of mitigation will depend on future growth in Plaquemines Parish.

[2] Phase III work on the GDM is programmed. The remaining Phase III work is unprogrammed pending the results of the GDM investigations.

SUMMARIZED FINANCIAL DATA (Continued)

Total Estimated Programmed Construction Cost	53,811,000	
Total Estimated Unprogrammed Construction Cost	498,389,000	
Total Estimated Project Cost	552,200,000	
		ACCUM.
Allocations to 30 September 1995	22,020,000	PCT. OF EST.
Conference Allowance for FY 1996	0	FED. COST
Allocation for FY 1996	-1,600,000[1]	
Allocations through FY 1996	20,420,000	13
Allocation Requested for FY 1997	752,000	13
Programmed Balance to Complete after FY 1997	12,895,000	
Unprogrammed Balance to Complete after FY 1997	126,933,000	

PHYSICAL DATA

Channels and Canals:
Southwest Pass: 55 feet deep (Mean Low Gulf) by 750 feet wide, 17.5 miles.
Southwest Pass Bar Channel: 55 feet deep (Mean Low Gulf) by 600 feet wide from Mile 18.0 below Head of Passes to the -55 foot (Mean Low Gulf) contour in the Gulf of Mexico (Mile 22.1 below Head of Passes)

Mississippi River: 55 feet deep (Mean Low Gulf) by 750 feet wide, 233 miles long.
Baton Rouge Turning Basin: 55 feet deep (Mean Low Gulf) by 1,600 feet wide, 4,000 feet long.

Breakwaters and Seawalls:
Control and contraction structures in South Pass and Pass-a-Loutre. Size and number of structures to be determined in the future.

Mitigation Measures:
Underwater dredged material sill at Mile 64 Above Head of Passes (top elevation -55.0 Mean Low Gulf), modifications to the Belle Chasse water treatment plant with water supply pipelines to the West Pointe-a-la-Hache and Boothville water treatment plants, and construction of a water supply reservoir at Davant, LA to supply the East Pointe-a-la-Hache water treatment plant. Until construction of a permanent mitigation plan is completed, an interim plan has been implemented to barge fresh raw water, with Operations and Maintenance, General funds, to three existing water treatment plants during periods of increased salinity caused by the deeper channel. (See Other Information).

JUSTIFICATION: According to the latest data, the ports of New Orleans and Baton Rouge are the number one and number five ports in the United States, respectively, based on the total tonnage of waterborne commerce. Much of this commerce is in liquid bulk and dry bulk oceangoing cargo which could be shipped much more economically using a deeper channel. The cargo was previously shipped in smaller ships or in lightly loaded larger ships over the 40-foot deep channel. The construction of the 45-foot channel has resulted in significant savings in the transportation cost of the oceangoing commerce moving over the channel. Deepening the channel to 55 feet will result in additional significant savings. The average annual benefits, all navigation, are $1,292,000,000, based on October 1980 prices.
Existing Commerce (tons):

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[1] Reflects $1,600,000 reprogrammed from the project.

Commodity	1985	1986	1987	1988	1989 [1]
Grain and Grain Products	17,213,239	18,550,994	17,171,964	17,598,559	15,049,975
Corn	54,761,466	37,878,975	59,661,426	63,361,660	73,133,667
Wheat	9,665,383	9,446,891	10,538,917	15,075,492	21,939,949
Soybeans	26,755,348	33,626,176	35,472,316	30,096,923	23,321,216
Meat and Dairy Products	68,878	54,340	25,320	26,524	17,125
Lumber and Lumber Products	420,889	439,474	317,502	341,993	393,732
Fish, Fruit and Food Products	572,800	610,197	527,281	549,023	727,296
Marine Shells	1,887,388	1,529,816	1,140,834	1,059,269	837,022
Ferrous and Non-Ferrous Ores	6,911,462	7,540,987	8,152,518	9,291,412	11,501,016
Coal and Coal Products	33,705,287	38,668,568	37,671,635	40,807,706	43,519,492
Crude Petroleum	36,945,029	39,760,730	43,448,439	43,033,069	52,575,789
Petroleum and Petroleum Products	51,203,181	54,794,924	54,666,892	63,202,968	69,056,104
Building Products	1,220,875	1,709,739	2,200,438	1,466,159	704,484
Chemicals and Chemical Products	40,501,258	46,836,784	45,287,254	45,091,171	30,361,276
Ferrous and Non-Ferrous Products	9,470,706	11,753,418	9,788,809	11,622,026	11,528,576
Salt	4,960,723	4,721,011	3,149,571	3,862,866	4,073,101
Sulphur	3,878,969	3,392,444	4,051,915	3,807,783	3,159,089
Sugar and Molasses	2,048,137	2,241,321	1,898,057	1,499,520	1,639,429
Machinery and Machinery Parts	542,366	709,138	461,009	651,796	950,151
Miscellaneous	22,184,701	25,253,260	27,355,136	32,997,516	40,130,960
Total	324,918,085	339,519,187	362,987,233	385,443,435	404,619,529

The average deep draft tonnage trafficked thru the project from 1979 thru 1989 was 183,197,960 tons. The deep draft savings per ton for liquid bulk cargo is $4.60; for dry bulk cargo, $6.60, and for general cargo, $.90. The ships expected to traffic the project in the future would carry up to 150,000 DWT (dead weight tons). Dredged material will be deposited on lands adjacent to the channel from Venice, Louisiana to the Gulf of Mexico. A substantial amount of these lands are within existing rights-of-way. Disposal for construction work above Venice, Louisiana, will be accomplished in the main channel of the Mississippi River.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue:	
Permanent Saltwater Intrusion Mitigation Facilities	$ 100,000
Planning, Engineering and Design - Phase I	75,000
Planning, Engineering and Design - Phase III	577,000
Total Project	$ 752,000

[1] Latest available information.

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Acts of 1986 and 1988, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Phase I, 45', Gulf - Mile 181.0		
Provide lands, easements, rights-of-way and dredged material disposal areas.	$ 145,000	
Modify or relocate pipelines and submarine cables where necessary for the construction of the project.	6,795,000	
Dredge New Orleans Harbor.	1,059,000	
Pay 25 percent of costs to construct the channel to 45 feet (cash contributions and/or equivalent work).	3,239,000	
Pay 25 percent of costs for mitigation reimbursement contributions and/or equivalent work.	5,812,000	
Pay maintenance dredging costs adjacent to New Orleans harbor wharves.		$ 1,360,000
Pay an additional 10 percent of the cost allocated to deep draft navigation within a period of 30 years following completion of construction [which is partially offset by a credit allowed for the value of lands, easements, rights-of-way, relocations and dredged material disposal areas].	944,000	
Subtotal, Phase I	$ 17,994,000	$ 1,360,000

Requirements of Local Cooperation (Continued)	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Phase II, 45', Mile 181 to Baton Rouge		
Modify or relocate pipelines and submarine cables where necessary for the construction of the project.	$ 1,022,000	
Pay 25 percent of costs to construct the channel to 45 feet (cash contributions).	1,672,000	
Subtotal, Phase II	$ 2,694,000	
Phase III, 55', Gulf to Baton Rouge		
Provide lands, easements, rights-of-way and dredged material disposal areas.	$ 400,000	
Modify or relocate pipelines and submarine cables where necessary for the construction of the project.	244,507,000	
Pay 25 percent of costs to construct the channel to 45 feet (cash contributions).	1,278,000	
Pay 50 percent of costs to construct the channel from 45 feet to 55 feet (cash contributions).	124,071,000	
Pay 50 percent of maintenance dredging costs between 45 feet and 55 feet.		$48,434,000
Subtotal, Phase III	$370,256,000	$48,434,000
Project Total	$390,944,000	$49,794,000

The non-Federal sponsor has agreed to make all payments of first costs (excluding the reimbursement) concurrently with project construction and to pay an additional 10 percent reimbursement of the costs allocated to deep draft navigation less a credit for the value of lands, easements, rights-of-way, relocations, and dredged material disposal area, within a period of 30 years following completion of construction.

STATUS OF LOCAL COOPERATION: On 13 September 1985, the Governor of the State of Louisiana designated the Louisiana Department of Economic Development, formerly the Department of Commerce, as the local sponsor for the project. A Local Cooperation Agreement for a 45-foot channel from the Gulf of Mexico to Mile 181 Above Head of Passes (Phase I) was executed on 30 June 1986. The first supplement to the Local Cooperation Agreement reflecting the Water Resources Development Act of 1986 cost-sharing provisions was executed on 15 June 1987. A second supplement reflecting the changes required by the Water Resources Development Act of 1988 was executed on 25 June 1990. A third supplement was executed on 28 May 1993 that provides for the local sponsor to construct the permanent saltwater intrusion mitigation facilities. (See Other Information for more details). A Project Cooperation Agreement for the 45-foot channel from Mile 181 to Mile 232.4 (Phase II) was executed on 3 September 1993.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $161,000,000 is an increase of $4,000,000 from the latest estimate ($157,000,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Post Contract Award and Other Estimating Adjustments	$-1,189,000
Price Escalation on Construction Features	5,189,000
Total	$ 4,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency on 2 July 1982. A Supplemental Information Report to this final Environmental Impact Statement addressing the prototype dredging of Fairview Crossing was filed with the Environmental Protection Agency on 28 July 1983. A similar report addressing construction of a prototype saltwater intrusion sill was filed with the Environmental Protection Agency on 14 September 1983. A Supplemental Information Report addressing the underwater dredged material sill at Mile 64 Above Head of Passes, to mitigate for increased saltwater intrusion, was filed with the Environmental Protection Agency on 24 September 1985. An Environmental Assessment/Finding of No Significant Impact for the Venice, Louisiana to Mile 181 Above Head of Passes reach, for dredging four crossings and the approach channels to berthing areas in New Orleans Harbor, was filed with the Environmental Protection Agency on 18 December 1987. Another Environmental Assessment/Finding of No Significant Impact addressing the interim saltwater mitigation plan and revised marsh creation quantities was filed with the Environmental Protection Agency on 22 April 1987. Another Environmental Assessment/Finding of No Significant Impact addressing the training works required at four crossings between mile 181 Above Head of Passes and mile 232.4 Above Head of Passes was signed on 13 July 1990. Another Environmental Assessment/Finding of No Significant Impact addressing the permanent saltwater intrusion mitigation plan (water pipeline construction) was signed on 15 January 1991. An Environmental Assessment/Finding of No Significant Impact evaluating dredging of Sardine Point was completed 1 April 1991.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1982, and funds to initiate construction were appropriated in Fiscal Year 1985.

Dredging of the 45-foot channel south of New Orleans to the Gulf of Mexico was completed on 1 December 1987. Dredging of the 45-foot channel from New Orleans to Mile 181 Above Head of Passes was completed on 17 December 1988. Dredging of the 45-foot channel from Mile 181 Above Head of Passes to Baton Rouge (Mile 232.4) was completed on 9 December 1994.

As a result of the severe drought conditions in the midwest part of the country during the summer of 1988, interim saltwater intrusion mitigation measures for the 45-foot channel were implemented on 30 June 1988, with construction of an underwater dredged material sill in the Mississippi River at Mile 63.7 Above Head of Passes which was completed to an elevation of -45.0 feet NGVD on 1 August 1988.

The other part of the interim mitigation plan was to barge fresh water to the three municipal water treatment plants at Boothville and at East and West Pointe-a-la-Hache, Louisiana, downstream of the sill. Approximately 101 million gallons of water was barged, commencing on 14 July 1988 and continuing through 2 December 1988. Operations and Maintenance General funds were used for both the barging operation and sill construction. The intrusion event was dealt with effectively, and both the sill and the barging of freshwater to Lower Plaquemines Parish were demonstrated to be practicable.

The permanent mitigation plan involves the State of Louisiana taking the responsibility for having Plaquemines Parish upgrade their existing water distribution system to handle the increase in saltwater intrusion caused by the 45-foot channel. The Corps of Engineers will reimburse the State for the Federal share (75%) of the cost for this plan which is more cost effective than our barging plan for a 45-foot channel. The State will relieve us of our responsibility to mitigate for the potable water needs in lower Plaquemines Parish once this plan is complete. Federal participation in the construction of the permanent mitigation plan is limited by a cost cap. The cost cap was incorporated into the third

supplemental local cooperation agreement for Phase I. The cost cap is based on the least costly Federal alternative which is the cost to barge water to Plaquemines Parish during times of increased salinity caused by the deeper channel over the 50-year project life. Once the cost of the permanent mitigation plan equals or exceeds the cost cap, Federal participation in mitigation for Phase I of the project will end. Construction of the permanent mitigation plan began on 21 October 1993. We will still be responsible for construction of the underwater sill to mitigate above Mile 64 above Head of Passes when required. Design Memorandum Supplement No. 6 covering the permanent mitigation plan was approved on 7 December 1992.

An initial economic analysis of the Phase II reach indicated that maintenance dredging costs exceeded project benefits. To justify this portion of the project, submerged rock dikes were proposed at four crossings (Red Eye, Medora, Granada, and Alhambra) within the Phase II reach. Mathematical modeling, navigation simulations and physical model testing were conducted at the Waterways Experiment Station (WES) to study the dikes. Industry pilots participated in the navigation simulations at WES. Although the dike plan was economically justified, industry reaction to the dikes was negative. The industry representatives believe that the dikes would present a navigation hazard and would cause traffic congestion. The Baton Rouge Port Commission and the local sponsor agreed with the navigation industry and informed the Corps that they did not support the rock dike plan. Upon review of these objections, further development of the rock dike concept was discontinued. At the request of the navigation industry, we reevaluated a dredging only plan (no rock dikes). The reanalysis considered possible benefits and cost reductions that were not evaluated in the initial economic analysis. Additional savings in the cost of relocations and documentation of additional benefits for the deeper channel have resulted in an economic analysis in which the benefits exceed the costs. Based on this reanalysis we resubmitted the Design Memorandum Supplement on Phase II and it was approved 10 August 1993. Language contained in the Fiscal Year 1993 Energy and Water Development Appropriations Conference Report directed the initiation of construction on Phase II immediately after execution of the Project Cooperation Agreement. The Project Cooperation Agreement was executed on 3 September 1993. The construction of the 45-foot channel in this reach began on 31 July 1994 and was completed on 9 December 1994.

The State of Louisiana requested that we perform a preliminary analysis of Phase III, the remaining work in the authorized project. This analysis included a review of cost estimates and design assumptions and proposals for maintenance dredging reductions. Based on the results of this analysis, the State of Louisiana has requested that we proceed with a General Design Memorandum for the Phase III work. We have initiated this work.

SUMMARIZED FINANCIAL DATA FOR PROGRAMMED SEPARABLE ELEMENTS:
PHASE I

Estimated Appropriation Requirement				
(Corps of Engineers)				27,153,000
Programmed Construction			27,153,000	
Unprogrammed Construction			0	
Estimated Appropriation Requirement				
(US Coast Guard)				0
Programmed Construction			0	
Unprogrammed Construction			0	
Estimated Total Appropriation Requirement				27,153,000
Programmed Construction			27,153,000	
Unprogrammed Construction			0	
Future Non-Federal Reimbursement				944,000
Programmed Construction			944,000	
Unprogrammed Construction			0	
Estimated Federal Cost (Ultimate)				
(Corps of Engineers)				26,209,000
Programmed Construction			26,209,000	
Unprogrammed Construction			0	
Estimated Non-Federal Cost				17,994,000
Programmed Construction			17,994,000	
Cash Contributions		3,239,000		
Other Costs		13,811,000		
Reimbursements		944,000		
Navigation	944,000			
Unprogrammed Construction			0	
Cash Contributions		0		
Other Costs		0		
Reimbursements		0		
Total Estimated Programmed Construction Cost				44,203,000
Total Estimated Unprogrammed Construction Cost				0
Total Estimated Project Cost				44,203,000

REMAINING BENEFIT - REMAINING COST RATIO FOR PHASE I: Not applicable because construction is complete.

TOTAL BENEFIT - COST RATIO FOR PHASE I: The Phase I channel has been complete since 1988. A total benefit-cost ratio was not computed for Phase I as a separable element.

PHASE II

Estimated Appropriation Requirement (Corps of Engineers)			5,014,000
Programmed Construction		5,014,000	
Unprogrammed Construction		0	
Estimated Appropriation Requirement (US Coast Guard)			0
Programmed Construction		0	
Unprogrammed Construction		0	
Estimated Total Appropriation Requirement			5,014,000
Programmed Construction		5,014,000	
Unprogrammed Construction		0	
Future Non-Federal Reimbursement			0
Programmed Construction		0	
Unprogrammed Construction		0	
Estimated Federal Cost (Corps of Engineers)			5,014,000
Programmed Construction		5,014,000	
Unprogrammed Construction		0	
Estimated Non-Federal Cost (Ultimate)			2,694,000
Programmed Construction		2,694,000	
Cash Contributions	1,672,000		
Other costs	1,022,000		
Reimbursements	0		
Unprogrammed Construction			0
Cash Contributions		0	
Other Costs		0	
Reimbursements		0	
Total Estimated Programmed Construction Cost			7,708,000
Total Estimated Unprogrammed Construction Cost			0
Total Estimated Project Cost			7,708,000

REMAINING BENEFIT - REMAINING COST RATIO FOR PHASE II: Not applicable because construction is complete.

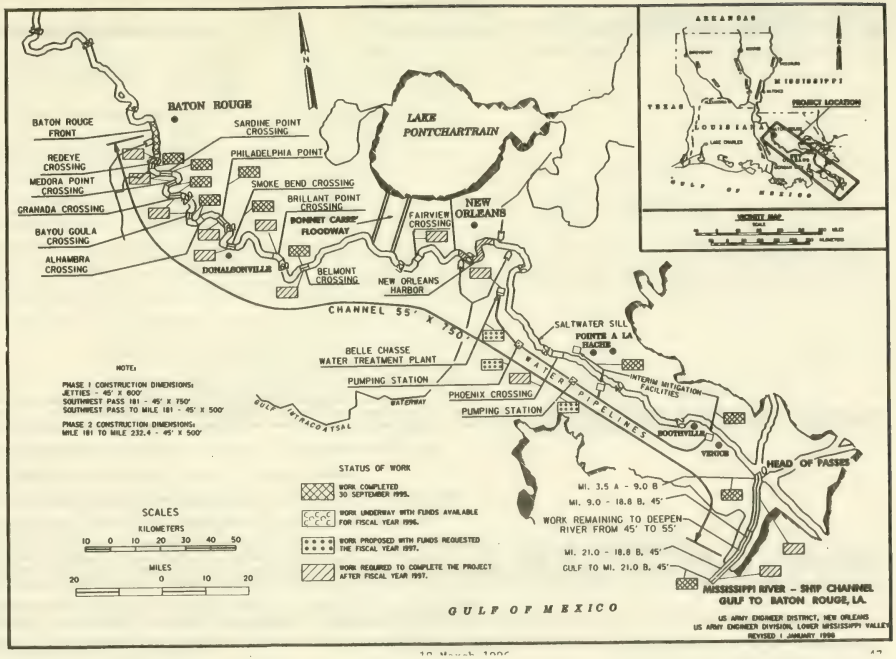
TOTAL BENEFIT-COST RATIO FOR PHASE II: The Phase II channel was completed on 9 December 1994.

PHASE III

Estimated Appropriation Requirement			
(Corps of Engineers)			128,833,000
Programmed Construction		1,900,000	
Unprogrammed Construction		126,933,000	
Estimated Appropriation Requirement			
(US Coast Guard)			1,200,000
Programmed Construction		0	
Unprogrammed Construction		1,200,000	
Estimated Total Appropriation Requirement			130,033,000
Programmed Construction		1,900,000	
Unprogrammed Construction		128,133,000	
Future Non-Federal Reimbursement			0
Programmed Construction		0	
Unprogrammed Construction		0	
Estimated Federal Cost (Ultimate)			
(Corps of Engineers)			128,833,000
Programmed Construction		1,900,000	
Unprogrammed Construction		126,933,000	
Estimated Non-Federal Cost (Ultimate)			0
Programmed Construction		0	
Cash Constributions	0		
Other Costs	0		
Reimbursements	0		
Unprogrammed Construction			370,256,000
Cash Contributions		125,349,000	
Other Costs		244,907,000	
Reimbursements		0	
			1,900,000
Total Estimated Programmed Construction Cost			498,389,000
Total Estimated Unprogrammed Construction Cost			500,289,000
Total Estimated Project Cost			

REMAINING BENEFIT - REMAINING COST RATIO FOR PROGRAMMED SEPARABLE ELEMENTS: The remaining benefit - remaining cost ratio for Phase III is being determined in the GDM studies which are currently underway.

TOTAL BENEFIT - COST RATIO FOR PROGRAMMED SEPARABLE ELEMENTS: The total benefit - cost ratio for Phase III is being determined in the GDM studies which are currently underway.


BATON ROUGE
BATON ROUGE FRONT
REDEYE CROSSING
MEDORA POINT CROSSING
GRANADA CROSSING
BAYOU GOULA CROSSING
ALHAMBRA CROSSING
SARDINE POINT CROSSING
PHILADELPHIA POINT
SMOKE BEND CROSSING
BRILLANT POINT CROSSING
BONNET CARRE' FLOODWAY
DONALDSONVILLE
BELMONT CROSSING
LAKE PONTCHARTRAIN
FAIRVIEW CROSSING
NEW ORLEANS
NEW ORLEANS HARBOR
CHANNEL 55' X 750'
BELLE CHASSE WATER TREATMENT PLANT
PUMPING STATION
GULF INTRACOASTAL WATERWAY
PHOENIX CROSSING
PUMPING STATION
SALTWATER SILL
POINTE A LA HACHE
INTERIM MITIGATION FACILITIES
WATER PIPELINES
BOOTHVILLE
VENICE
HEAD OF PASSES
MI. 3.5 A - 9.0 B
MI. 9.0 - 18.8 B, 45'
WORK REMAINING TO DEEPEN RIVER FROM 45' TO 55'
MI. 21.0 - 18.8 B, 45'
GULF TO MI. 21.0 B, 45'
MISSISSIPPI RIVER - SHIP CHANNEL
GULF TO BATON ROUGE, LA.
GULF OF MEXICO
NOTE:
PHASE 1 CONSTRUCTION DIMENSIONS:
JETTIES - 45' X 600'
SOUTHWEST PASS 181 - 45' X 750'
SOUTHWEST PASS TO MILE 181 - 45' X 500'
PHASE 2 CONSTRUCTION DIMENSIONS:
MILE 181 TO MILE 232.4 - 45' X 500'
STATUS OF WORK
WORK COMPLETED 30 SEPTEMBER 1995.
WORK UNDERWAY WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996.
WORK PROPOSED WITH FUNDS REQUESTED THE FISCAL YEAR 1997.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997.
SCALES
KILOMETERS
10 0 10 20 30 40 50
MILES
20 0 10 20
N
ARKANSAS
MISSISSIPPI
TEXAS
LOUISIANA
LAKE CHARLES
GULF OF MEXICO
PROJECT LOCATION
VICINITY MAP
SCALE
US ARMY ENGINEER DISTRICT, NEW ORLEANS
US ARMY ENGINEER DIVISION, LOWER MISSISSIPPI VALLEY
REVISED 1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Mississippi River Between the Ohio and Missouri Rivers (Regulating Works) (Continuing)

LOCATION: The project involves improvement of the Mississippi River from the mouth of the Ohio River to the mouth of the Missouri River at mile 195 above the mouth of the Ohio River.

DESCRIPTION: The project consists of a navigation channel 9 feet deep and not less than 300 feet wide with additional width in bends, from the mouth of the Ohio River to the northern boundary of the City of St. Louis, a distance of approximately 191 miles, thence 200 feet wide, with additional width in bends, to the mouth of the Missouri River. It will be achieved by means of dikes, revetment, construction dredging, and rock removal. All work is programmed.

AUTHORIZATION: River and Harbor Acts of 1910, 1927, and 1930.

REMAINING BENEFIT-REMAINING COST RATIO: 22.7 to 1 at 2.5 percent.

TOTAL BENEFIT-COST RATIO: 11.8 to 1 at 2.5 percent.

INITIAL BENEFIT-COST RATIO: 4.5 to 1 at 2.5 percent (FY 1961).

BASIS OF BENEFIT-COST RATIO: Benefits are based on the Upper Mississippi River Master Plan Report of 1982 at 1986 price level. The Document which provides the basis for benefits is the River and Harbor Act of 21 January 1927, Rivers and Harbors Commission Document No. 12, 70th Congress, 1st session.

SUMMARIZED FINANCIAL DATA			STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$214,000,000	Entire Project	79	Being Determined
Estimated Non-Federal Cost		0			
Cash Contributions	0				
Other Cost	0				
Total Estimated Project Cost		$214,000,000			
Allocations to 30 September 1995		176,124,000			
Conference Allowance for FY 1996		4,700,000			
Allocation for FY 1996		4,310,000[1]			
Allocations through FY 1996		180,434,000	84		
Allocation Requested for FY 1997		3,400,000	86		
Programmed Balance to Complete After FY 1997		30,166,000			
Unprogrammed Balance to Complete after FY 1997		0			

PHYSICAL DATA	
Channel: 195 miles	
Ohio River to St. Louis	9 x 300 feet
St. Louis to Missouri River	9 x 200 feet

JUSTIFICATION: The Mississippi River between the Ohio and Missouri Rivers is a major artery of the inland waterway system. Commerce in this reach has increased from 4,500,000 tons in 1945 to 109,000,000 tons in 1994 worth approximately $30 billion. Commerce is expected to increase to 167,000,000 tons by the year 2020; therefore, it is essential that construction of project works be continued at a rate which will insure 9-foot channel depths for a year-round navigation season. The average annual benefits, all navigation, are $261,809,000.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate:	Kaskaskia Bend Phase IV, Miles 125-113	$ 218,000
Continue:	Lands and Damages	20,000
	Project Dedicated Operating Equipment	52,000
Complete:	Mosenthien Reach Phase I, Miles 195-184	1,392,000
	Planning, Engineering and Design	1,018,000
	Supervision and Administration	700,000
	Total	$3,400,000

[1] Reflects $390,000 reduction assigned as savings and slippage.

NON-FEDERAL COST: None required.

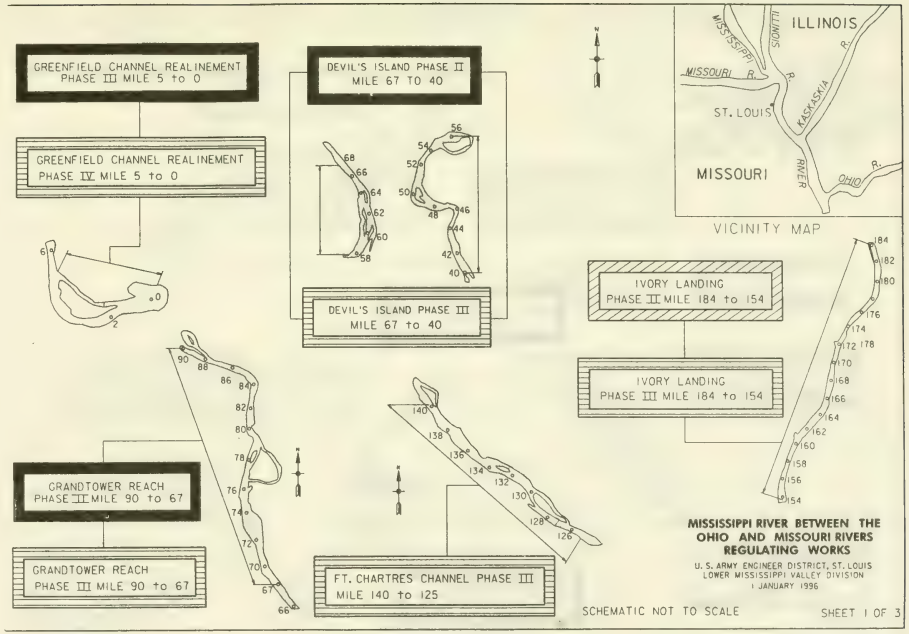
STATUS OF LOCAL COOPERATION: None required.

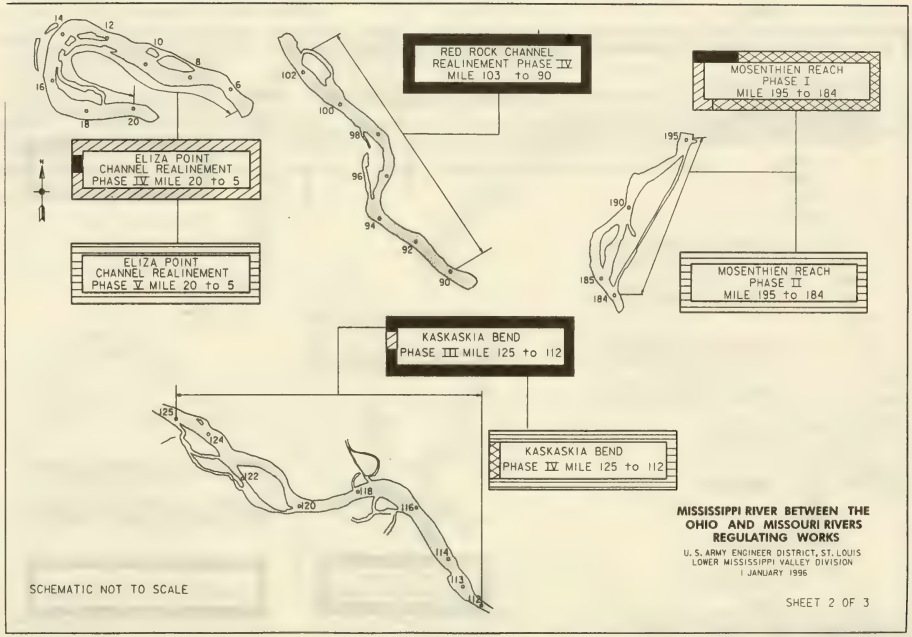
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $214,000,000 is an increase of $4,000,000 from the latest estimate ($210,000,000) presented to Congress (FY 1996). This change includes the following item:

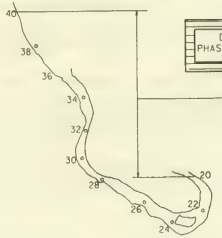
Item	Amount
Price Escalation on Construction Features	$4,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 8 April 1976 and published in the Federal Register on 23 April 1976. An Environmental Analysis was completed for the Rock Removal and Finding of No Significant Impact signed on 28 October 1988.

OTHER INFORMATION: Planning was initiated prior to 1910; Construction was initiated in 1910.


GREENFIELD CHANNEL REALINEMENT
PHASE III MILE 5 to 0
GREENFIELD CHANNEL REALINEMENT
PHASE IV MILE 5 to 0
DEVIL'S ISLAND PHASE II
MILE 67 TO 40
DEVIL'S ISLAND PHASE III
MILE 67 to 40
IVORY LANDING
PHASE II MILE 184 to 154
IVORY LANDING
PHASE III MILE 184 to 154
GRANDTOWER REACH
PHASE II MILE 90 to 67
GRANDTOWER REACH
PHASE III MILE 90 to 67
FT. CHARTRES CHANNEL PHASE III
MILE 140 to 125
ILLINOIS
MISSISSIPPI
ILLINOIS
MISSOURI R.
ST. LOUIS
KASKASKIA
MISSOURI
RIVER
OHIO R.
VICINITY MAP
MISSISSIPPI RIVER BETWEEN THE
OHIO AND MISSOURI RIVERS
REGULATING WORKS
U. S. ARMY ENGINEER DISTRICT, ST. LOUIS
LOWER MISSISSIPPI VALLEY DIVISION
1 JANUARY 1996
SCHEMATIC NOT TO SCALE
SHEET 1 OF 3


ELIZA POINT
CHANNEL REALINEMENT
PHASE IV MILE 20 to 5
ELIZA POINT
CHANNEL REALINEMENT
PHASE V MILE 20 to 5
RED ROCK CHANNEL
REALINEMENT PHASE IV
MILE 103 to 90
MOSENTHIEN REACH
PHASE I
MILE 195 to 184
MOSENTHIEN REACH
PHASE II
MILE 195 to 184
KASKASKIA BEND
PHASE III MILE 125 to 112
KASKASKIA BEND
PHASE IV MILE 125 to 112
SCHEMATIC NOT TO SCALE
MISSISSIPPI RIVER BETWEEN THE
OHIO AND MISSOURI RIVERS
REGULATING WORKS
U. S. ARMY ENGINEER DISTRICT, ST. LOUIS
LOWER MISSISSIPPI VALLEY DIVISION
1 JANUARY 1996
SHEET 2 OF 3



DOG TOOTH BEND
PHASE III TO MILE 40 to 20

DOG TOOTH BEND
PHASE IV TO MILE 40 to 20

CHESTER REACH
PHASE II MILE 112 to 103

DIKE MILE 195 to 0
(FOUR CONTRACTS)

MODIFIED REACHES
PHASE I MILE 195 to 0

DREDGING
MILE 132 to 129

MODIFIED REACHES
PHASE II MILE 195 to 0

REVETMENT MILE 195 TO 0
(SIX CONTRACTS)

STATUS OF WORK

- WORK COMPLETED.
- WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR.
- WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR.
- WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR.

MISSISSIPPI RIVER BETWEEN THE OHIO AND MISSOURI RIVERS REGULATING WORKS

U. S. ARMY ENGINEER DISTRICT, ST. LOUIS
LOWER MISSISSIPPI VALLEY DIVISION
1 JANUARY 1996

SCHEMATIC NOT TO SCALE

SHEET 3 OF 3

APPROPRIATION TITLE: Construction, General - Locks and Dams (Navigation)

PROJECT: Melvin Price Lock and Dam, Illinois and Missouri (Continuing)

LOCATION: Melvin Price Lock and Dam is located in Madison County, Illinois, and St. Charles County, Missouri, in the vicinity of Alton, Illinois, at approximately mile 200.8 above the mouth of the Ohio River and approximately two miles downstream from the existing Locks and Dam 26.

DESCRIPTION: The project plan provides for the construction of one 1,200-foot lock; a new gated dam with 9 tainter gates, provision for expansion, and an overflow dike; removal of most of the existing structure; and relocation/abandonment of the Burlington-Northern Railroad bridge. Mitigation land will be provided to compensate for wildlife losses due to creation of a new pool for the two-mile distance downstream of the existing structure. Recreation facilities will be developed with the city of Alton, Illinois, consistent with the Water Resources Development Acts of 1986, 1990, and 1992. The project is part of the Upper Mississippi River Navigation System. All work is programmed.

AUTHORIZATION: Internal Revenue Code of 1954, Title I - Replacement of Locks and Dam 26; Water Resources Development Acts of 1986, 1990, and 1992.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio is not applicable since the project is nearing completion.

TOTAL BENEFIT-COST RATIO: 2.1 to 1 at 6 7/8 percent.

INITIAL BENEFIT-COST RATIO: 1.6 to 1 at 6 7/8 percent (FY 1974).

BASIS OF BENEFIT-COST RATIO: Benefits are based on Supplement No. 2 to Design Memorandum No. 2, approved on 31 August 1979 at October 1978 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST
Estimated Federal Cost		738,932,000	
Estimated Non-Federal Cost		4,668,000	
Cash Contribution	4,668,000		
Other	0		
Total Estimated Project Cost		743,600,000	
Allocations to 30 September 1995		716,823,000[1]	
Conference Allowance for FY 1996		2,400,000	
Allocation for FY 1996		2,835,000[2]	
Allocations through FY 1996		719,658,000	97
Allocation Requested for FY 1997		4,000,000	98
Programmed Balance to Complete after FY 1997		15,274,000	
Unprogrammed Balance to Complete after FY 1997		0	

STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	97	Being Determined
Lock and Dam	99	Dec 1994
Open to Navigation	100	Feb 1990

PHYSICAL DATA

Lock: One - 1,200 feet x 110 feet
Dam: Non-navigable 9 tainter gates
Overflow Dike: Earth Embankment, 2000 feet
Spur Dike: Earth Embankment, 2.4 miles
Relocations: Roads ($2,233,000); Railroad ($13,933,000); Utilities ($15,979,000)
Pumping Plant: One - 225 cubic feet per second
Lands and Damages: Acres - 4,286; Type - Predominantly crop, brush, and timberland and some commercial, recreational, and industrial land and improvements fronting the river.
Improvements - Industrial, commercial, and recreation buildings.

JUSTIFICATION: The poor physical condition of the old Locks and Dam No. 26 and the inability of the locks to handle current and projected traffic without costly delays made replacement imperative. Both the dam and locks were set on piles, which were driven into the riverbed sands and were not supported by bedrock. The structure, which was placed in operation in 1938, had a history of excessive deflections, settlements, and loss of foundation material. Remedial measures were undertaken to correct deficiencies, but permanent repair of the old structure was impractical because of engineering and cost considerations. The average annual waterborne commerce tonnage (1984-1994) was 69 million tons valued at approximately $18 billion. Grains, chemicals, petroleum, and coal account for 90 percent of this traffic. Because of the small size of the locks, multiple lockages were required to pass a complete tow measuring 1,200 feet in length. The average delay to tows at the old Locks No. 26 was approximately 10.5 hours. Based on the Master Plan Study (authorized by P.L. 95-502), a single lock 110 feet wide by 1,200 feet long would have an estimated capacity of 94 to 100 million tons per year. The length of

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[1] Includes $1,320,000 to initiate design of Melvin Price Lock and Dam, Second Lock in FY 1985.

[1] Reflects $199,000 reduction assigned as savings and slippage and $634,000 reprogrammed to the project.

1,200 feet permits tows to lock through as a single unit, thus eliminating the delays from double locking and congestion. Future tow sizes are expected to remain at 110 feet wide by 1,200 feet long. Total transportation charges for commodity movements by inland water range between 40 and 60 percent lower than least cost alternative modes. More than 60 percent of traffic is grain, the bulk of which is for export. Gulf export grain now moves, depending on the origin and volume, at approximately $4.00 to $6.00 savings per ton. Average annual benefits are as follows:

Annual Benefits	Amount
Navigation	$82,678,000
Recreation	469,000
Total	$83,147,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate: Cultural Resource Monument	$ 31,000
Initiate and Complete: Automated Data Acquisition System	54,000
Continue: Lands and Damages	80,000
Operation and Maintenance Manuals	120,000
Visitor Center	2,155,000
Visitor Center Exhibits	404,000
As Built Drawings	53,000
Miscellaneous Operating Equipment	47,000
Foundation Reports	43,000
Planning, Engineering, and Design	546,000
Supervision and Administration	467,000
Total	$ 4,000,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, as amended, which are applicable to unstarted separable elements, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual, Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Pay one-half of the separable and joint costs allocated to recreational navigation, pay one-half of the separable cost of recreation facilities, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of recreation and recreational navigation facilities.	$4,668,000	$306,000
Total Non-Federal Costs	$4,668,000	$306,000

STATUS OF LOCAL COOPERATION: The Water Resources Development Act of 1990 contains provisions that allow the state of Illinois and the Corps to enter into a cost-sharing agreement for the construction of riverfront recreation facilities. The Water Resources Development Act of 1992 amended the 1990 Act by allowing cost sharing with other non-Federal interests. The city of Alton, Illinois, submitted a letter of intent dated 13 February 1991 for sharing the cost of developing recreation facilities along the riverfront at Alton, in the vicinity of the existing structure. A plan for recreational development will be prepared.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $738,932,000 is an increase of $432,000 from the latest estimate ($738,500,000) presented to Congress (FY 1996). This change includes the following item:

Item	Amount
Price Escalation on Construction Features	$432,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 24 August 1976 and published in the Federal Register on 8 September 1976.

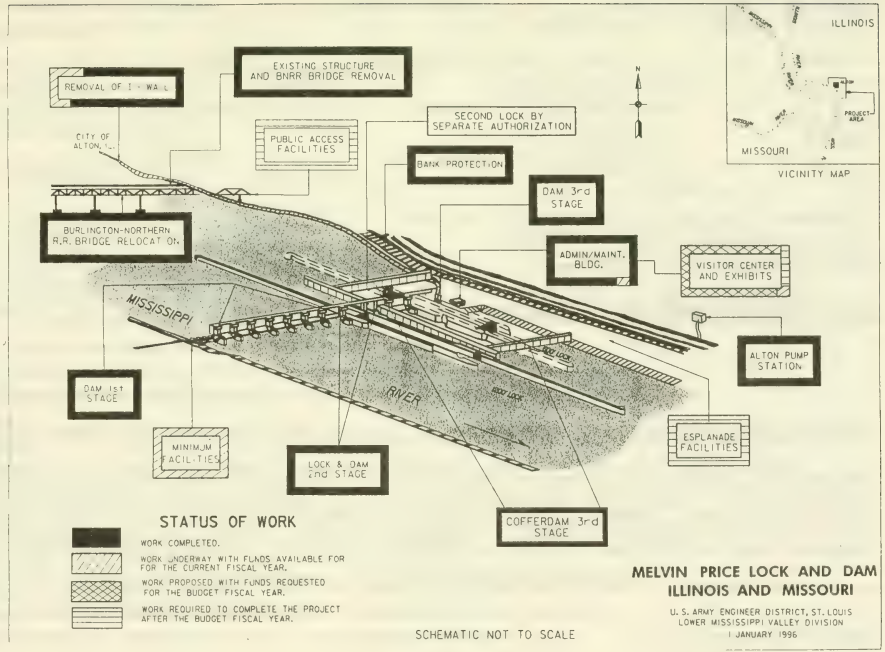
OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1970, and funds to initiate construction were appropriated in FY 1974.

In accordance with Public Law 97-118, the project name changed from Lock and Dam 26 (Replacement) to Melvin Price Lock and Dam.

Fish and Wildlife mitigation costs are $3,857,000.

Dredge material disposal sites were used on Ellis Island during construction, but this phase is complete and no further construction dredging is expected.

A 12,000-square-foot visitor center is under design and scheduled for award in Fiscal Year 1996. This structure will be 100 percent Federally funded. On 30 September 1994 the Acting Assistant Secretary of the Army (CW) sent letters to the Chairmen of the House and Senate Subcommittees on Energy and Water Development of the Committees on Appropriations, informing them of the construction of a facility of this size and scope.


REMOVAL OF I-WALL
EXISTING STRUCTURE AND BNRR BRIDGE REMOVAL
CITY OF ALTON
PUBLIC ACCESS FACILITIES
SECOND LOCK BY SEPARATE AUTHORIZATION
BANK PROTECTION
DAM 3rd STAGE
BURLINGTON-NORTHERN R.R. BRIDGE RELOCATION
ADMIN/MAINT. BLDG.
VISITOR CENTER AND EXHIBITS
MISSISSIPPI
RIVER
ALTON PUMP STATION
DAM 1ST STAGE
MINIMUM FACILITIES
LOCK & DAM 2nd STAGE
ESPLANADE FACILITIES
COFFERDAM 3rd STAGE
N
ILLINOIS
MISSOURI
PROJECT AREA
VICINITY MAP
STATUS OF WORK
WORK COMPLETED.
WORK UNDERWAY WITH FUNDS AVAILABLE FOR FOR THE CURRENT FISCAL YEAR.
WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR.
SCHEMATIC NOT TO SCALE
MELVIN PRICE LOCK AND DAM
ILLINOIS AND MISSOURI
U. S. ARMY ENGINEER DISTRICT, ST. LOUIS
LOWER MISSISSIPPI VALLEY DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Construction General - Locks and Dams (Navigation)

PROJECT: Red River Waterway - Mississippi River to Shreveport, Louisiana (Continuing)

LOCATION: The project is located in central and northwest Louisiana and will provide a navigation route from the Mississippi River at its juncture with Old River via Old and Red Rivers to Shreveport, LA.

DESCRIPTION: The project provides for a 9- by 200-foot navigation channel extending about 236 miles from the Mississippi River through Old River and Red River to the vicinity of Shreveport. Five locks with dimensions of 84 by 685 by 14 feet and adjacent dams will provide a lift of about 141 feet. The project also provides for realigning the channel by means of dredging, cutoffs, and training works and for stabilizing its banks by means of revetments, dikes, and other methods. Recreation facilities and fish and wildlife development are also an integral part of the project. The major unprogrammed work includes recreation sites, and acquisition of a portion of mitigation lands. This project is part of the Red River Waterway, Louisiana, Texas, Arkansas, and Oklahoma, which also includes the Shreveport, to Daingerfield, TX (navigation), Shreveport, LA, to Index, AR (bank stabilization), and Index, AR, to Denison Dam (bank stabilization) reaches.

AUTHORIZATION: River and Harbor Act of 1968, Water Resources Development Act of 1976, Supplemental Appropriations Act of 1984, Water Resources Development Acts of 1986, 1988, 1990, and 1992, and Energy and Water Development Appropriations Act of 1994.

REMAINING BENEFIT - REMAINING COST RATIO: 5.9 to 1 at 3-1/4 percent.

TOTAL BENEFIT-COST RATIO: 1.3 to 1 at 3-1/4 percent.

INITIAL BENEFIT-COST RATIO: 1.2 to 1 at 3-1/4 percent (FY 1973).

BASIS OF BENEFIT-COST RATIO: Benefits are from the General Reevaluation Report and Final Supplement No. 2 to the Environmental Impact Statement, at 1982 price levels, approved 4 January 1984. Costs for current analysis are based on October 1995 costs deflated to October 1982 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Apprn Requirement (Corps)		$1,886,880,000
Programmed Construction	$1,801,402,000	
Unprogrammed Construction	85,478,000	
Estimated Apprn Requirements (U.S. Coast Guard)		374,000
Programmed Construction	374,000	
Unprogrammed Construction	0	
Estimated Total Apprn Requirement		1,887,254,000
Programmed Construction	1,801,776,000	
Unprogrammed Construction	85,478,000	
Estimated Non-Federal Cost		111,046,000
Programmed Construction	35,303,000	
Cash Contribution	$ 8,636,000	
Other Costs	26,667,000	
Unprogrammed Construction	75,743,000	
Cash Contribution	54,973,000	
Other Costs	20,770,000	

STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	85	Indefinite
Open to 9-Foot Navigation		
Lindy Boggs Lock & Dam		Dec 1987
John H. Overton Lock and Dam		Dec 1987
Lock and Dam No. 3		Dec 1991 [1]
Lock and Dam No. 4		Dec 1994
Joe D. Waggonner, Jr., Lock and Dam		Dec 1994

PHYSICAL DATA

Lands and Damages: 26,000 acres, mitigation of wildlife losses above mile 104.
Channels and Canals: Channel 9 feet deep, 200 feet wide, and 236 miles long from Old River to Shreveport,LA. Total length of bank protection - 273 miles.
Locks: Number - 5; Size - 84 by 685 feet
Dams: Number - 5; Type - Tainter Gated
Relocations: Roads (Modify one bridge)
Railroads (Replace one and modify one bridge)

[1] Initial interim pool impounded.

SUMMARIZED FINANCIAL DATA (Cont)		ACCUM. PCT. OF EST. FED. COST
Total Estimated Programmed Construction Cost	$1,837,079,000	
Total Estimated Unprogrammed Construction Cost	161,221,000	
Total Estimated Project Cost	1,998,300,000 [1]	
Allocations to 30 September 1995	1,643,589,000	
Conference Allowance for FY 1996	16,673,000	
Allocations for FY 1996	16,290,000 [2]	
Allocations through FY 1996	1,659,879,000 [1]	88
Allocation Requested for FY 1997	4,800,000	89
Programmed Balance to Complete After FY 1997	137,097,000	
Unprogrammed Balance to Complete After FY 1997	85,478,000	

JUSTIFICATION: The Red River is a very erratic river subject to wide fluctuations in stage and meandering because of the erodible soils. For navigation to become a reality on Red River, a system of dependable pools and a properly aligned channel are necessary. The pools are provided by locks and dams and the proper alignment is provided by bank and channel stabilization works. Dredged material disposal sites for construction and maintenance are within the limits of the river bank or areas furnished by local interests at no cost to the United States. These works preserve lands and improvements along the navigation route. With preproject open river conditions, the controlling depths for navigation from January to July are 9 feet from the Mississippi River to the mouth of the Black River, 6 feet from the mouth of the Black River to Alexandria, LA, and 5 feet to Shreveport,LA. During the remainder of the year, controlling depths are generally about 9 feet from the Mississippi River to the mouth of the Black River, about 4 feet from there to Alexandria, and 1 to 2 feet to Shreveport. On 31 December 1994, a 9-foot-deep by 200-foot-wide navigation channel was opened from the Mississippi River to Shreveport. The channel provides dependable 9-foot navigation depths year-round.

Navigation from the Mississippi River to Shreveport will provide an artery for low-cost transportation which, will stimulate economic growth of the region. Estimated savings are based on an average annual movement of 7,845,000 tons. The average waterborne commerce tonnage experienced during the 10-year period from 1980 to 1989 in the lower 35 miles of the waterway is 2,311,200 tons. Commodities to be carried over the waterway include iron and steel products and pipe, industrial chemicals, paper and allied paper products, petroleum and petroleum products, other metals and ores, sulphur, agricultural chemicals, and grain. The public will realize an average annual savings of $68,831,000 which will result from reduced transportation costs. Several local entities are actively involved in port development on the waterway. The city of Alexandria has constructed port facilities for use by industry and the Caddo-Bossier Port Commission has done extensive planning, engineering, and design of port facilities at Rothschild Realignment in Pool 5. The Caddo-Bossier Port Commission has also acquired lands for the port site and has construction of initial facilities underway. The Port Commission of Natchitoches Parish has also acquired a port site. These ports would be able to accommodate tows or barges of various sizes. The usable lock dimensions were designed for a configuration of six barges with individual dimensions of 35 by 195 feet and a towboat. Larger grain and petroleum barges can also be expected to call at the ports. The project is

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[1] Includes $26,654,000 for Overton-Red River Waterway and $21,653,000 for Red River Emergency Bank Protection for construction work.

[1] Reflects $1,383,000 reduction assigned as savings and slippage, $376,000 revoked for Flood Control and Coastal Emergencies, and $1,376,000 reprogrammed to the project.

credited with benefits derived from transportation savings from use of the waterway, flood control, damages prevented by bank stabilization, security against levee crevasses, fish and wildlife, recreation, area redevelopment, reduced maintenance on existing revetments, reduced sedimentation, irrigation, reduced costs of municipal and industrial water supply, and reduced pumping costs. The average annual benefits are as follows:

Annual Benefits	Amount
Navigation	$ 68,831,000
Flood Control	2,037,000
Bank Stabilization	16,602,000
Fish and Wildlife	460,000
Recreation	4,435,000
Area Redevelopment	14,808,000
Other:	
Irrigation and reduced costs of municipal and industrial water supply	53,000
Total	$107,226,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Pool 1	
Continue:	
Planning, Engineering and Design	$ 289,000
Subtotal Pool 1	289,000
Pool 2	
Continue:	
Planning, Engineering and Design	$ 229,000
Supervision and Administration	10,000
Subtotal Pool 2	$ 239,000
Pool 3	
Complete:	
Permanent Operating Equipment	$ 325,000
Continue:	
Planning, Engineering and Design	1,411,000
Subtotal Pool 3	$1,736,000
Pool 4	
Complete:	
Permanent Operating Equipment	$ 92,000
Continue:	
Planning, Engineering and Design	871,000
Supervision and Administration	4,000
Subtotal Pool 4	$ 967,000
Pool 5	
Complete:	
Permanent Operating Equipment	$ 63,000
Continue:	
Planning, Engineering and Design	830,000
Supervision and Administration	302,000
Subtotal Pool 5	$1,195,000
Mitigation	
Continue:	
Land Acquisition	$ 374,000
GRAND TOTAL	$4,800,000

NON-FEDERAL COST: With the exception of the LA-AR Railroad Bridge Relocation and the mitigation element, local interests are required to provide all lands, easements, and rights-of-way, including a proportionate share of the cost of the bridge relocations over existing channels in accordance with the principles of Section 6 of the Bridge Alteration Act (Truman-Hobbs) of 21 June 1940, as amended by the Act of 16 July 1952, 25 percent of the cost of necessary retaining dikes for dredged materials and 50 percent of the total cost of recreation facilities. Non-Federal costs associated with the total project are broken down as follows. The non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas	$ 37,707,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project	10,761,000	$ 211,700
Pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of recreation facilities	59,901,000	1,448,000
Pay 6 percent of the first costs allocated to fish and wildlife and pay 6 percent of the costs of operation, maintenance, repair, rehabilitation, and replacement of fish and wildlife facilities	479,000 [1]	333,800 [2]
Pay 25 percent of the first cost allocated to retention dikes required for construction and maintenance dredging	2,198,000	31,200
Replacement costs		302,900
Total Non-Federal Costs	$111,046,000	$2,327,600

[1] Since the local sponsor will assume all operation and maintenance costs and this cost will exceed the 6 percent local share, there will be no local requirement toward implementation costs for Loggy Bayou increment. Implementation costs shown are for the Bayou Bodcau increment.

[2] 100 percent of annual management costs.

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction. Non-Federal cost associated with the scheduled portion of the project are broken down as follows:

Lands and Damages	$18,999,000
Utility Relocations	7,668,000
Cash Contribution:	8,636,000
Recreation Facilities	(5,525,000)
Bridge Relocations	(1,031,000)
Retaining Dikes	(1,996,000)
Mitigation	(84,000)
Total	$35,303,000

STATUS OF LOCAL COOPERATION: Formal assurances of local cooperation were furnished by the Red River Waterway Commission on 26 February 1969 and accepted on behalf of the United States on 15 April 1969. That agency was formed expressly to provide the local cooperation required for the project and has levied a 2-mill assessment to fulfill its obligations. Amended assurances covering the provisions of the Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, and the specific written agreement requirements of Section 221 of the Flood Control Act of 1970, Public Law 91-611, were executed by the Red River Waterway Commission on 23 May 1973 and were accepted on behalf of the United States on 14 November 1973. A cost sharing agreement covering nine recreation sites in Pools 1 and 2 was approved by the Deputy Chief of Engineers on 23 July 1985. A Memorandum of Understanding between the Corps and the local sponsor for development of these nine sites was executed in January 1986. A supplement to this cost-sharing agreement was executed in the last quarter of Fiscal Year 1994 to cover the advance construction of three boat ramps and ancillary facilities in Pools 4 and 5 in Fiscal Year 1995. In the Conference Report that accompanied the Energy and Water Development Appropriations Act of 1993, Congress directed the Corps of Engineers to prepare a supplement to the recreation master plan to serve as the project document to support the contract for recreation development in Pools 3-5. The current schedule for the Project Cooperation Agreement completion is March 1997. The Red River Waterway Commission agreed by letter dated 6 September 1983 to fulfill all responsibilities of the local sponsor relative to the purchase of wildlife mitigation lands. The Louisiana Department of Wildlife and Fisheries, by letter dated 22 July 1983, agreed to assume operation and maintenance responsibilities for acquired wildlife mitigation lands. Updated letters of agreement covering the mitigation plan as presently conceived (i.e., acquisition of up to 5,000 acres in the vicinity of Loggy Bayou) were furnished by the Red River Waterway Commission and the Louisiana Department of Wildlife and Fisheries on 13 August 1990 and 17 August 1990, respectively. The Red River Waterway Commission also furnished a letter of agreement to support the Bayou Bodcau mitigation increment subject to certain conditions on 9 September 1992.

All conditions with the exception of one had been resolved prior to passage of the Energy and Water Development Appropriations Act of 1994. Passage of the Act resolved this last condition, which involves how the costs for the Federal share of operation and maintenance undertaken by the Red River Waterway Commission will be treated by authorizing annual reimbursement in lieu of crediting. The Local Cooperation Agreement between the Federal Government and the State of Louisiana for the acquisition of up to 5,000 acres of mitigation lands in the vicinity of Stumpy Lake/Swan Lake/Loggy Bayou Wildlife Management Area was executed by the Red River Waterway Commission in May 1993 and by the Assistant Secretary of the Army in June 1993. Since all Red River Waterway Commission conditions have now been satisfactorily resolved, preparation of a Project Cooperation Agreement, which will cover the acquisition of mitigation lands in the vicinity of the Bayou Bodcau Wildlife Management Area, has been reinitiated in accordance with the Fiscal Year 1992 Energy and Water Development Appropriations Act. Pool 3 will require new structural features at Nantachie Lake so that the lake can continue to be drawn down subsequent to final pool impoundment. As a result, the Red River Waterway Commission was requested to agree to accept operation and maintenance responsibilities for the new Nantachie Lake drawdown structure and to agree to provide amended assurances of local cooperation to this effect in December 1993. At the same time, they were also requested to agree to accept responsibility for related modification or replacement of bayou crossings downstream of Nantachie Lake. The sponsor has not yet agreed to accept responsibility related to the bayou crossings.

The Red River Waterway Commission is providing its share of the project first costs by furnishing the necessary lands, easements, and rights-of-way, performing utility relocations as needed, and providing cash contributions for recreation facilities, bridge relocations, and retaining dikes. They will contribute their share of retention dike construction for maintenance dredging by cash contribution and they will provide the lands, easements, and rights-of-way for these dikes.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $1,886,880,000 is an increase of $160,464,000 from the latest estimate ($1,726,416,000) presented to Congress (FY 1996). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$40,521,000
Postcontract Award and Other Estimating Adjustments	$119,943,000
Total	$160,464,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final statement was filed with the Council on Environmental Quality on 11 May 1973. The Environmental Impact Statement is included in the project "Red River Waterway." Supplement No. 1 to the Environmental Impact Statement was prepared for the Mississippi River to Shreveport reach of the Red River Waterway due to a change in project alignment from the authorizing document, and to include updated environmental information due to a reanalysis and to include results of the ground-water studies. The final Supplement No. 1 was filed with the Council on Environmental Quality on 18 February 1977, and published in the Federal Register on 25 February 1977. A third Environmental Impact Statement (Supplement No. 2) was submitted to the Environmental Protection Agency in final form on 10 November 1983, and the record of decision was signed by the Division Engineer on 4 January 1984. This supplement was necessary to document the expanding base of data and design information being developed and accompanied the General Reevaluation Report.

An Environmental Assessment was prepared for Pool No. 2 to present the results of investigations of the impacts of the 58- and 64-foot elevations. The Environmental Assessment resulted in a Finding of No Significant Impact which allowed a design change from 58- to 64-foot pool elevations. Following review by the public, the Finding of No Significant Impact was signed on 21 April 1982.

An Environmental Assessment of the Loggy Bayou Area mitigation increment has been performed. This area was not included in the original mitigation report. The Environmental Assessment was required to satisfy the National Environmental Policy Act. The Environmental Assessment resulted in a Finding of No Signficant Impact, which was signed 11 January 1993. Environmental Assessment's are required to present the impacts associated with the construction of riverside levee protection berms in Pools 3 and 5. The berms are necessary to ensure the integrity of the existing flood control levee system. The Environmental Assessment for the berms in Pool 3 resulted in a Finding of No Significant Impact, which was signed on 16 July 1992. The Environmental Assessment for the berms in Pool 5 also resulted in a Finding of No Significant Impact which was signed on 24 May 1993.

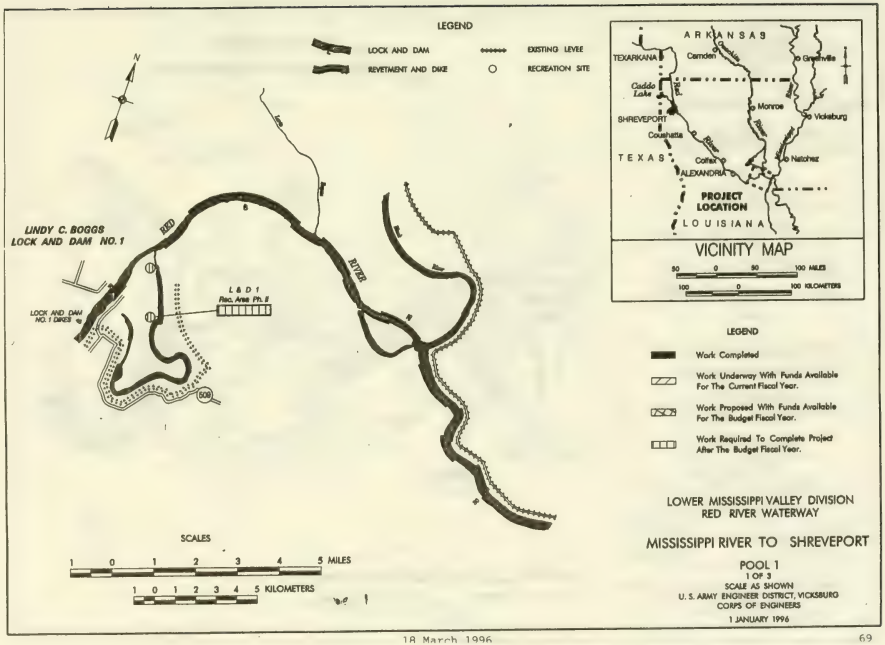
Environmental Assessment's are also required for the Bayou Bodcau mitigation increment and the Nantachie Lake drawdown structure to satisfy National Environmental Protection Agency requirements. The Bayou Bodcau mitigation Environmental

Assessment resulted in a Finding of No Significant Impact that was signed on 28 April 1995, and the Nantachie Lake drawdown structure Environmental Assessment was essentially completed in first quarter Fiscal Year 1996, also resulting in a Finding of No Significant Impact.

A draft Environmental Assessment has also been prepared covering instream disposal of maintenance dredge material in Pools 3, 4, and 5 in lieu of disposal in contained upland areas. Completion of this Environmental Assessment is scheduled for the third quarter FY 1996.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1971 and allotted in FY 1972. Funds to initiate construction were appropriated in Fiscal Year 1973.

The Water Resources Development Act of 1986, as modified by the Water Resources Development Acts of 1988 and 1990 and the Fiscal Year 1990 and Fiscal Year 1994 Energy and Water Development Appropriation Acts, authorized the wildlife mitigation project for the waterway above mile 104 to Shreveport, Louisiana, at a total cost of $9,420,000. The Water Resources Development Act of 1990 modifies the mitigation project by authorizing the Secretary of the Army to acquire an additional 12,000 acres adjacent to or close to the Bayou Bodcau Wildlife Management Area. The real estate design memorandums, which present the real estate requirements for the Loggy Bayou area and Bayou Bodcau area mitigation lands, have been approved. The Chief of Engineers report on mitigation was returned unendorsed to the Secretary of the Army by Office of Management Budget because it does not clearly demonstrate compliance with the Administration's policy on mitigation. A supplemental report which provides the requested information required to demonstrate compliance has been submitted to the Assistant Secretary of the Army. The supplemental report, which was submitted prior to passage of the Fiscal Year 1990 Energy and Water Development Appropriations Act and the Water Resources Development Act of 1990, recommends the acquisition of only 300 acres in the Stumpy Lake area and no lands in the vicinity of the Bayou Bodcau Wildlife Management Area. The Energy and Water Development Appropriation Act of 1994 directed the annual reimbursement to the project's local sponsor for the Federal share of management costs for the Bayou Bodcau mitigation area.


LEGEND
LOCK AND DAM
REVETMENT AND DIKE
EXISTING LEVEE
RECREATION SITE
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LINDY C. BOGGS
LOCK AND DAM NO. 1
LOCK AND DAM NO. 1 DIKES
L & D 1
Rec. Area Ph. II
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RIVER
SCALES
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1 0 1 2 3 4 5 KILOMETERS
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TEXARKANA
Camden
Greenville
Caddo Lake
SHREVEPORT
Monroe
Vicksburg
Coushatta
TEXAS
Colfax
Natchez
ALEXANDRIA
PROJECT LOCATION
LOUISIANA
VICINITY MAP
50 0 50 100 MILES
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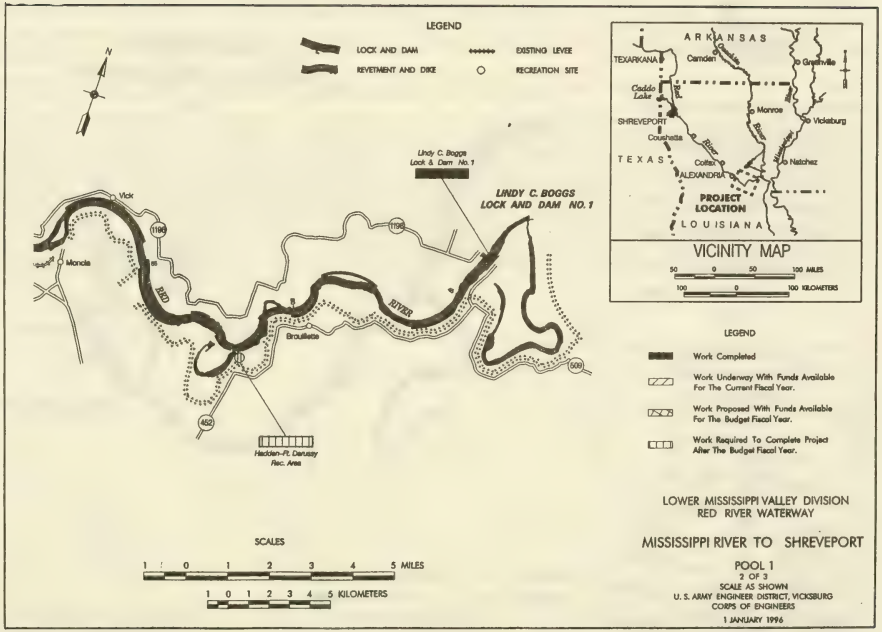
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
LOWER MISSISSIPPI VALLEY DIVISION
RED RIVER WATERWAY
MISSISSIPPI RIVER TO SHREVEPORT
POOL 1
1 OF 3
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996


LEGEND
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Ouachita
Monroe
Vicksburg
SHREVEPORT
Coushatta
Red River
Mississippi River
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Colfax
Natchez
ALEXANDRIA
PROJECT LOCATION
LOUISIANA
VICINITY MAP
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LEGEND
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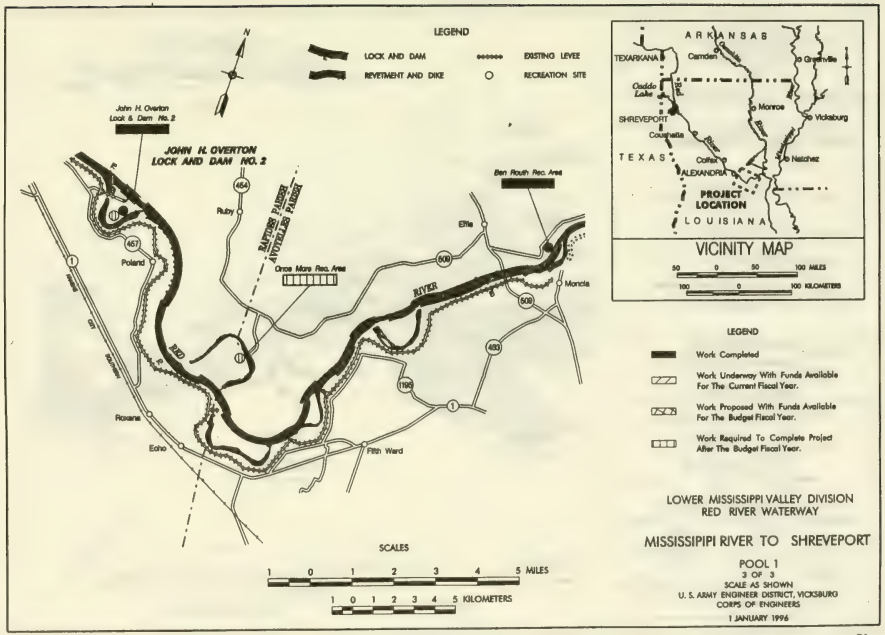
LOWER MISSISSIPPI VALLEY DIVISION
RED RIVER WATERWAY
MISSISSIPPI RIVER TO SHREVEPORT
POOL 1
2 OF 3
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996


LEGEND
LOCK AND DAM
REVETMENT AND DIKE
EXISTING LEVEE
RECREATION SITE
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John H. Overton Lock & Dam No. 2
JOHN H. OVERTON LOCK AND DAM NO. 2
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467
Poland
SAPTONS PARISH
AVOYELLES PARISH
Ones Mare Rec. Area
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Moncla
RIVER
RED
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Roxana
Echo
Fifth Ward
ARKANSAS
TEXARKANA
Camden
Greenville
Caddo Lake
Monroe
SHREVEPORT
Vicksburg
Coushatta
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Natchez
Colfax
ALEXANDRIA
PROJECT LOCATION
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VICINITY MAP
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MISSISSIPIPI RIVER TO SHREVEPORT
POOL 1
3 OF 3
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996
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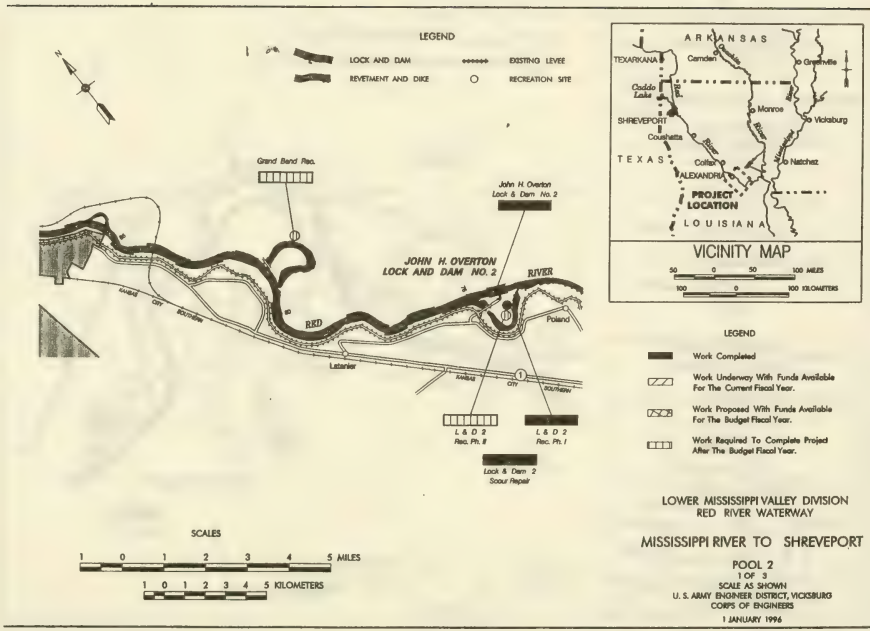
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REVETMENT AND DIKE
RECREATION SITE
Grand Bend Rec.
John H. Overton Lock & Dam No. 2
JOHN H. OVERTON LOCK AND DAM NO. 2
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Poland
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L & D 2 Rec. Pt. I
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Caddo Lake
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Coushatta
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ALEXANDRIA
PROJECT LOCATION
LOUISIANA
VICINITY MAP
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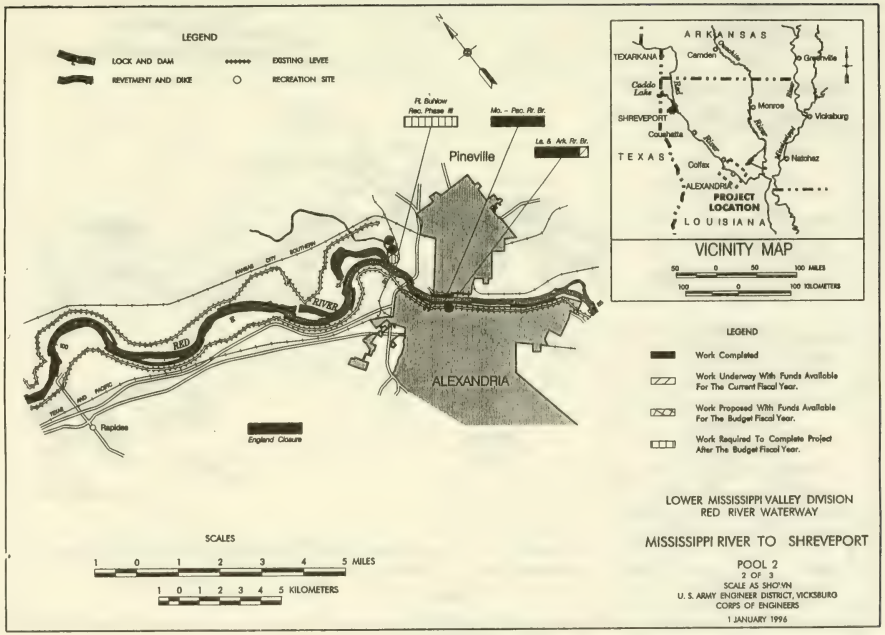
LOWER MISSISSIPPI VALLEY DIVISION
RED RIVER WATERWAY
MISSISSIPPI RIVER TO SHREVEPORT
POOL 2
1 OF 3
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996


LEGEND
LOCK AND DAM
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RECREATION SITE
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Mo. - Pac. Rr. Br.
La. & Ark. Rr. Br.
Pineville
ALEXANDRIA
RED RIVER
Rapides
England Closure
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Greenville
Caddo Lake
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ALEXANDRIA
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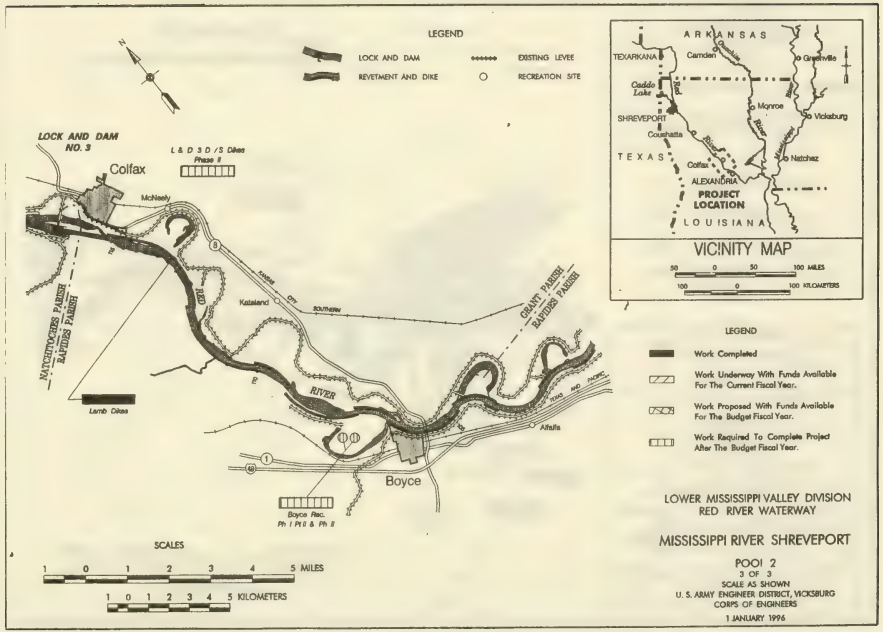
LOWER MISSISSIPPI VALLEY DIVISION
RED RIVER WATERWAY
MISSISSIPPI RIVER TO SHREVEPORT
POOL 2
2 OF 3
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996


LEGEND
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RECREATION SITE
LOCK AND DAM NO. 3
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McNeely
Katalanda
Lamb Dikes
RIVER
Boyce
Boyce Rec. Ph I Pt II & Ph II
Alfalfa
GRANT PARISH
RAPIDES PARISH
WINN PARISH
RAPIDES PARISH
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Vicksburg
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PROJECT LOCATION
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VICINITY MAP
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LOWER MISSISSIPPI VALLEY DIVISION
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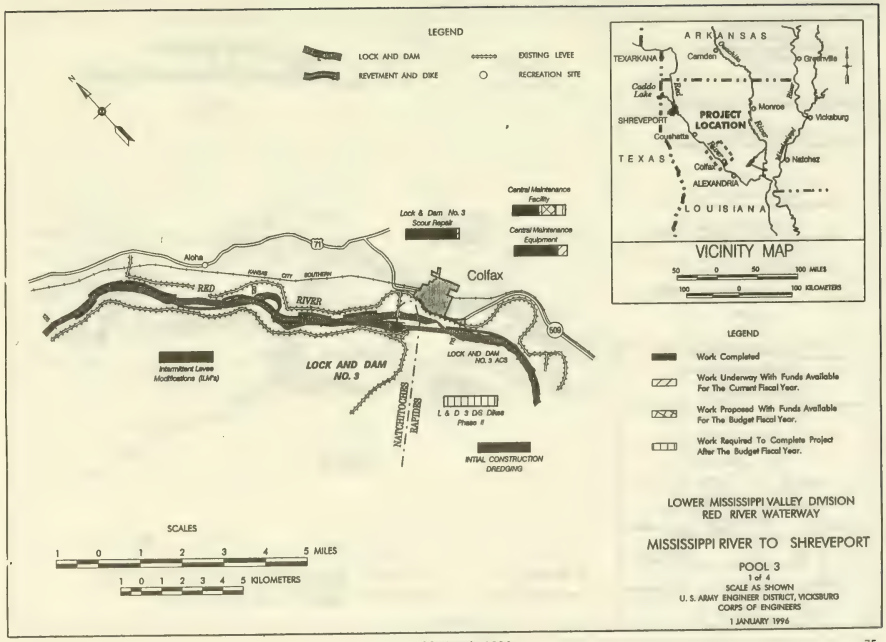
POOI 2
3 OF 3
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996


LEGEND
LOCK AND DAM
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RECREATION SITE
Central Maintenance Facility
Central Maintenance Equipment
Lock & Dam No. 3 Scour Repair
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RED RIVER
Colfax
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LOCK AND DAM NO. 3 ACS
Intermittent Levee Modifications (ILMs)
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SHREVEPORT
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PROJECT LOCATION
Monroe
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LOUISIANA
VICINITY MAP
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Work Underway With Funds Available For The Current Fiscal Year.
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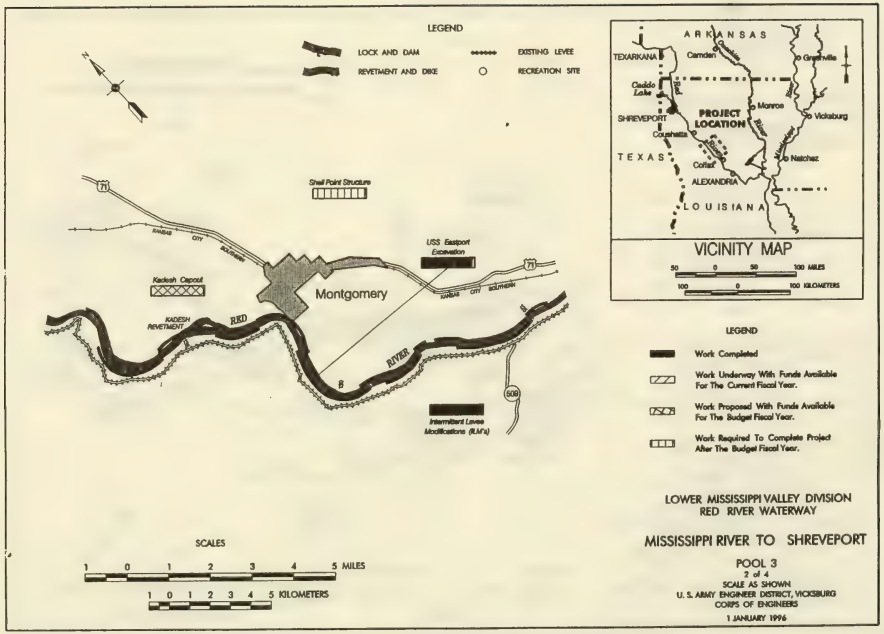
LOWER MISSISSIPPI VALLEY DIVISION
RED RIVER WATERWAY
MISSISSIPPI RIVER TO SHREVEPORT
POOL 3
1 of 4
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996


LEGEND
LOCK AND DAM
REVETMENT AND DIKE
EXISTING LEVEE
RECREATION SITE
Shell Point Structure
USS Eastport Excavation
Kadesh Capcut
KADESH REVETMENT
RED
RIVER
Montgomery
ARKANSAS CITY SOUTHERN
70
80
Intermittent Levee Modifications (R.M.'s)
SCALES
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1 0 1 2 3 4 5 KILOMETERS
ARKANSAS
TEXARKANA
Camden
Greenville
Caddo Lake
SHREVEPORT
Coushatta
Monroe
PROJECT LOCATION
Vicksburg
TEXAS
Natchez
Cotton
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LOUISIANA
VICINITY MAP
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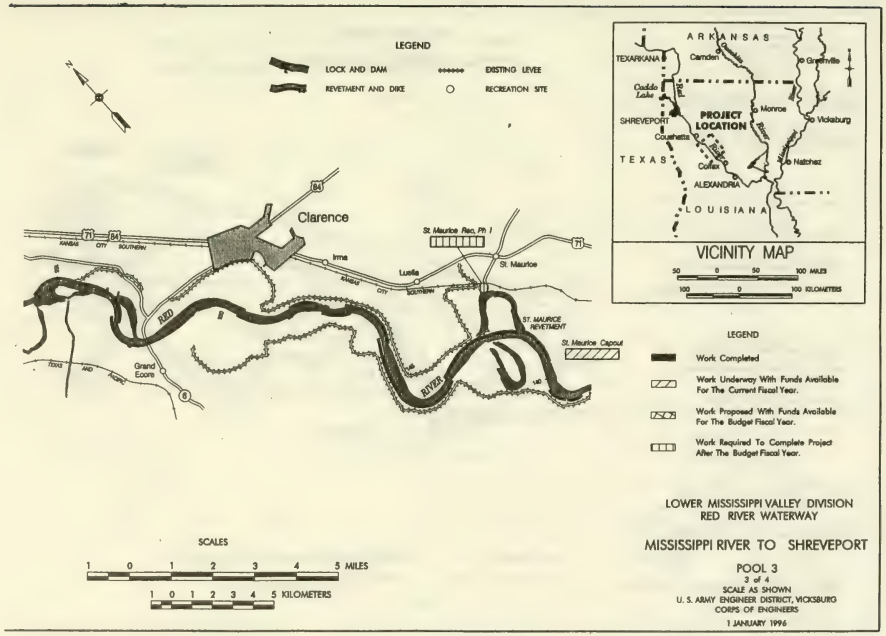
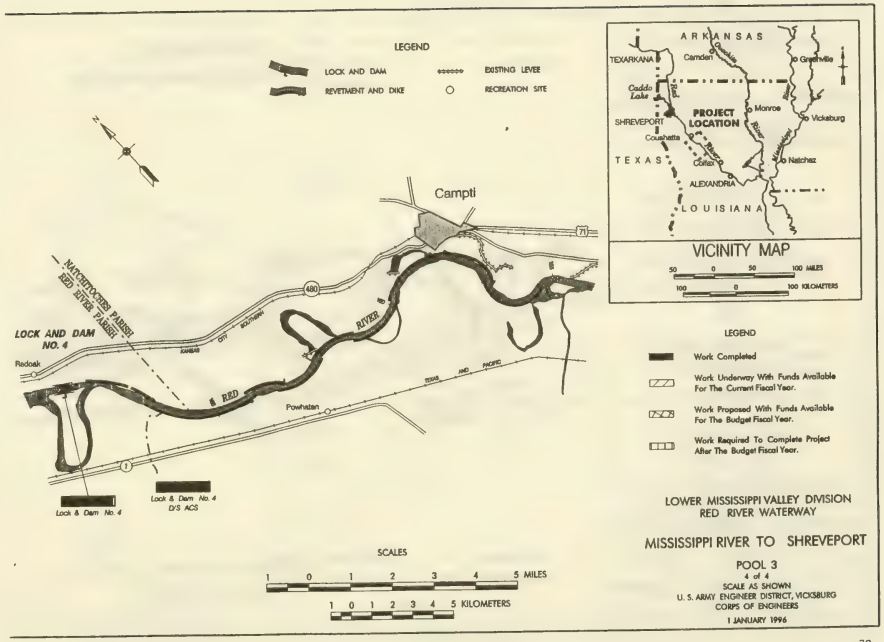
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
LOWER MISSISSIPPI VALLEY DIVISION
RED RIVER WATERWAY
MISSISSIPPI RIVER TO SHREVEPORT
POOL 3
2 of 4
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996


LEGEND
LOCK AND DAM
REVETMENT AND DIKE
EXISTING LEVEE
RECREATION SITE
Clarence
St. Maurice Rec. Ph I
Irma
Lutts
St. Maurice
ST. MAURICE REVETMENT
St. Maurice Cutout
RED
RIVER
Grand Ecore
KANSAS CITY SOUTHERN
TEXAS AND PACIFIC
ARKANSAS
TEXARKANA
Camden
Greenville
Caddo Lake
SHREVEPORT
Coushatta
PROJECT LOCATION
Monroe
Vicksburg
TEXAS
Colfax
Natchez
ALEXANDRIA
LOUISIANA
VICINITY MAP
50 0 50 100 MILES
100 0 100 KILOMETERS
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
SCALES
1 0 1 2 3 4 5 MILES
1 0 1 2 3 4 5 KILOMETERS
LOWER MISSISSIPPI VALLEY DIVISION
RED RIVER WATERWAY
MISSISSIPPI RIVER TO SHREVEPORT
POOL 3
3 of 4
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996


LEGEND
LOCK AND DAM
REVETMENT AND DIKE
EXISTING LEVEE
RECREATION SITE
N
Campti
71
480
1
NATCHITOCHES PARISH
RED RIVER PARISH
LOCK AND DAM NO. 4
Redoak
KANSAS CITY SOUTHERN
RED RIVER
TEXAS AND PACIFIC
Powhatan
Lock & Dam No. 4
Lock & Dam No. 4 D'S ACS
SCALES
1 0 1 2 3 4 5 MILES
1 0 1 2 3 4 5 KILOMETERS
ARKANSAS
TEXARKANA
Camden
Greenville
Caddo Lake
Red River
Monroe
Vicksburg
SHREVEPORT
PROJECT LOCATION
Mississippi River
Coushatta
TEXAS
Colfax
Natchez
ALEXANDRIA
LOUISIANA
VICINITY MAP
50 0 50 100 MILES
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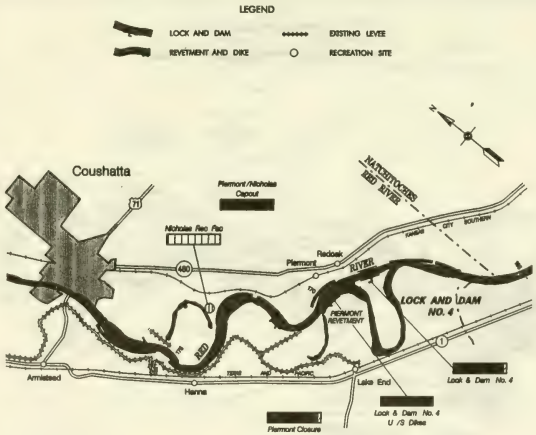
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
LOWER MISSISSIPPI VALLEY DIVISION
RED RIVER WATERWAY
MISSISSIPPI RIVER TO SHREVEPORT
POOL 3
4 of 4
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996



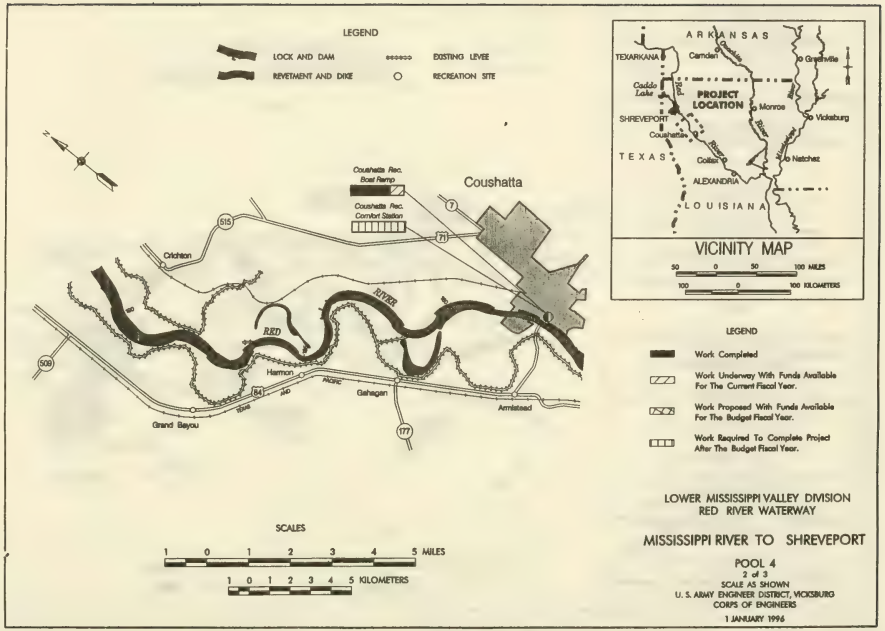
LEGEND

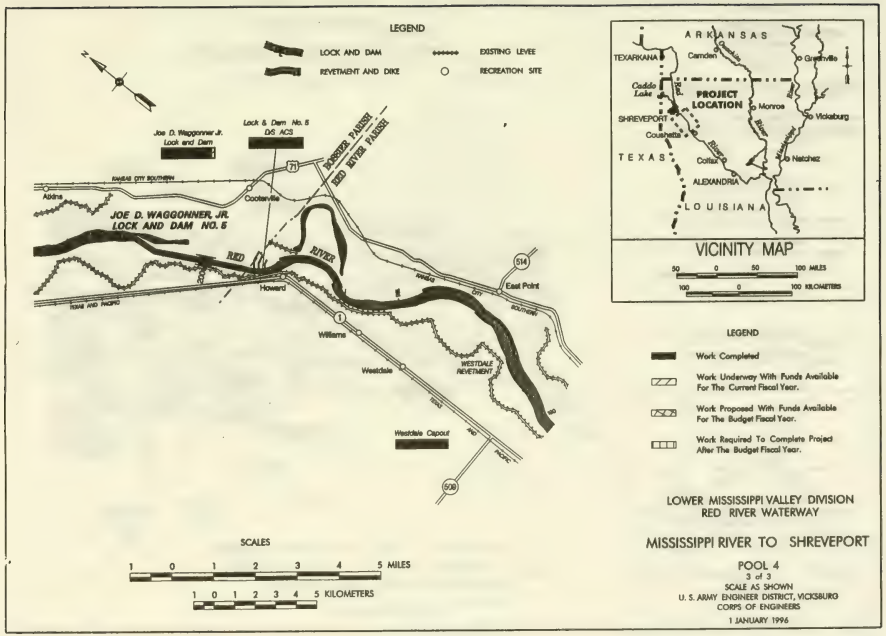
- Work Completed
- Work Underway With Funds Available For The Current Fiscal Year.
- Work Proposed With Funds Available For The Budget Fiscal Year.
- Work Required To Complete Project After The Budget Fiscal Year.

LOWER MISSISSIPPI VALLEY DIVISION
RED RIVER WATERWAY

MISSISSIPPI RIVER TO SHREVEPORT

POOL 4
1 of 3
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996


LEGEND
LOCK AND DAM
REVETMENT AND DIKE
EXISTING LEVEE
RECREATION SITE
Coushatta Rec. Boat Ramp
Coushatta Rec. Comfort Station
Coushatta
Crichton
RED
RIVER
Harmon
Pacific
Gahagan
Armistead
Grand Bayou
515
71
509
84
177
ARKANSAS
TEXARKANA
Camden
Ouachita
Greenville
Caddo Lake
PROJECT LOCATION
Monroe
SHREVEPORT
Coushatta
Vicksburg
Mississippi
Red River
TEXAS
Colfax
Natchez
ALEXANDRIA
LOUISIANA
VICINITY MAP
50 0 50 100 MILES
100 0 100 100 KILOMETERS
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
LOWER MISSISSIPPI VALLEY DIVISION
RED RIVER WATERWAY
MISSISSIPPI RIVER TO SHREVEPORT
POOL 4
2 of 3
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996
SCALES
1 0 1 2 3 4 5 MILES
1 0 1 2 3 4 5 KILOMETERS


LEGEND
LOCK AND DAM
REVETMENT AND DIKE
EXISTING LEVEE
RECREATION SITE
Joe D. Waggonner Jr. Lock and Dam
Lock & Dam No. 5 D/S ACS
BOSSIER PARISH
RED RIVER PARISH
KANSAS CITY SOUTHERN
Atkins
Cooterville
JOE D. WAGGONNER, JR. LOCK AND DAM NO. 5
RED RIVER
Howard
East Point
TEXAS AND PACIFIC
Williams
Westdale
WESTDALE REVETMENT
Westdale Capout
SCALES
1 0 1 2 3 4 5 MILES
1 0 1 2 3 4 5 KILOMETERS
ARKANSAS
TEXARKANA
Camden
Greenville
Caddo Lake
PROJECT LOCATION
Monroe
Vicksburg
SHREVEPORT
Coushatta
TEXAS
Colfax
Natchez
ALEXANDRIA
LOUISIANA
VICINITY MAP
50 0 50 100 MILES
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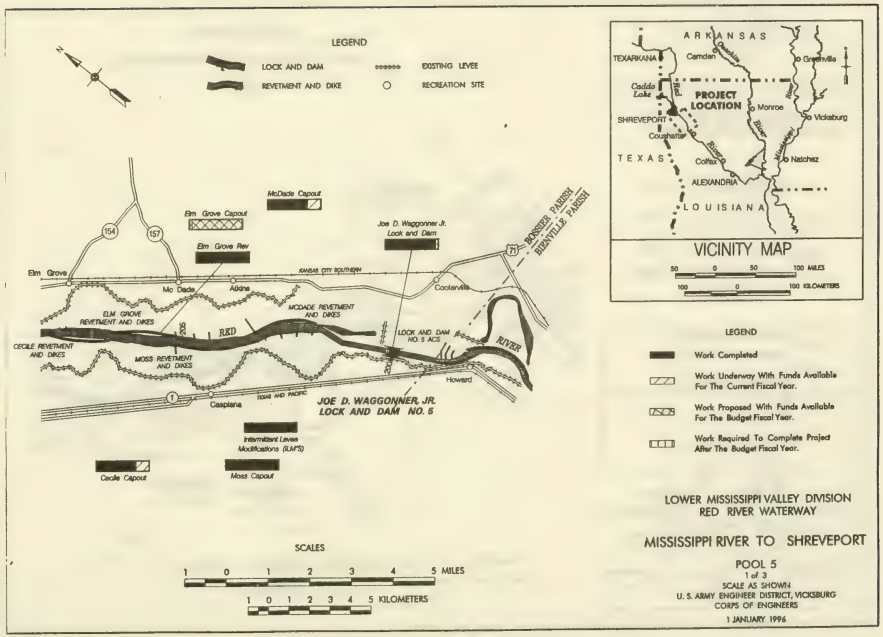
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
LOWER MISSISSIPPI VALLEY DIVISION
RED RIVER WATERWAY
MISSISSIPPI RIVER TO SHREVEPORT
POOL 4
3 of 3
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996


LEGEND
LOCK AND DAM
REVETMENT AND DIKE
EXISTING LEVEE
RECREATION SITE
McDade Capout
Elm Grove Capout
Elm Grove Rev
Joe D. Waggonner Jr. Lock and Dam
154
157
71
1
Elm Grove
Mc Dade
Atkins
Coatarville
KANSAS CITY SOUTHERN
BOSSIER PARISH
BIENVILLE PARISH
ELM GROVE REVETMENT AND DIKES
MCDADE REVETMENT AND DIKES
CECILE REVETMENT AND DIKES
MOSS REVETMENT AND DIKES
RED
RIVER
LOCK AND DAM NO. 5 ACS
Howard
Cassiana
IOWA AND PACIFIC
JOE D. WAGGONNER, JR. LOCK AND DAM NO. 5
Intermittent Levee Modifications (ILM'S)
Cecile Capout
Moss Capout
SCALES
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ARKANSAS
TEXARKANA
Camden
Greenville
Caddo Lake
PROJECT LOCATION
Monroe
SHREVEPORT
Vicksburg
Coushatta
TEXAS
Coffax
Natchez
ALEXANDRIA
LOUISIANA
VICINITY MAP
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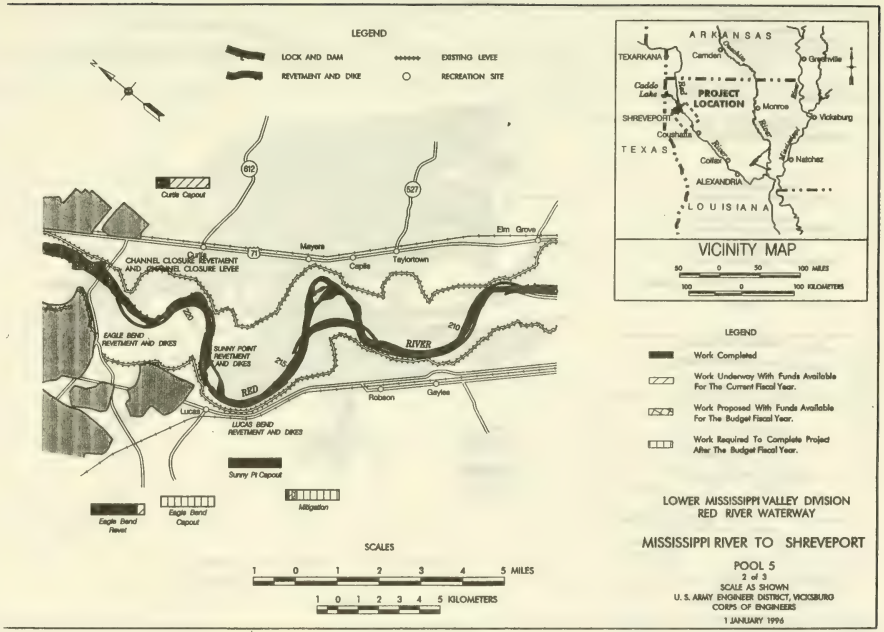
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
LOWER MISSISSIPPI VALLEY DIVISION
RED RIVER WATERWAY
MISSISSIPPI RIVER TO SHREVEPORT
POOL 5
1 of 3
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996


LEGEND
LOCK AND DAM
REVETMENT AND DIKE
EXISTING LEVEE
RECREATION SITE
N
812
527
Curtis Capout
Elm Grove
71
Meyers
Caplis
Taylortown
CHANNEL CLOSURE REVETMENT AND CHANNEL CLOSURE LEVEE
210
EAGLE BEND REVETMENT AND DIKES
SUNNY POINT REVETMENT AND DIKES
RIVER
RED
Robson
Gayles
Lucas
LUCAS BEND REVETMENT AND DIKES
Sunny Pt Capout
Eagle Bend Revet
Eagle Bend Capout
Mitigation
SCALES
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1 0 1 2 3 4 5 KILOMETERS
ARKANSAS
TEXARKANA
Camden
Greenville
Caddo Lake
PROJECT LOCATION
Monroe
Vicksburg
SHREVEPORT
Coushatta
TEXAS
Colfax
Natchez
ALEXANDRIA
LOUISIANA
VICINITY MAP
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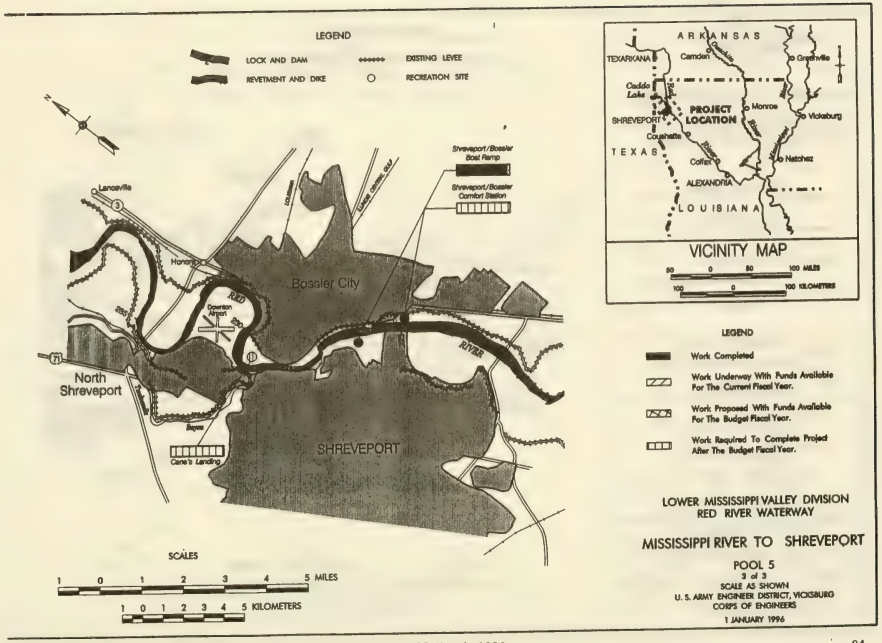
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
LOWER MISSISSIPPI VALLEY DIVISION
RED RIVER WATERWAY
MISSISSIPPI RIVER TO SHREVEPORT
POOL 5
2 of 3
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996


LEGEND
LOCK AND DAM
REVETMENT AND DIKE
EXISTING LEVEE
RECREATION SITE
Shreveport/Bossier Boat Ramp
Shreveport/Bossier Comfort Station
Lancelville
Hondo
Bossier City
Bossier Airport
North Shreveport
Bayou
Cane's Landing
SHREVEPORT
RIVER
SCALES
1 0 1 2 3 4 5 MILES
1 0 1 2 3 4 5 KILOMETERS
ARKANSAS
TEXARKANA
Camden
Greenville
Caddo Lake
PROJECT LOCATION
Monroe
Vicksburg
SHREVEPORT
Coushatta
TEXAS
Natchez
Colfax
ALEXANDRIA
LOUISIANA
VICINITY MAP
50 0 50 100 MILES
100 0 100 KILOMETERS
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
LOWER MISSISSIPPI VALLEY DIVISION
RED RIVER WATERWAY
MISSISSIPPI RIVER TO SHREVEPORT
POOL 5
3 of 3
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection - Flood Control

PROJECT: Rend Lake, Illinois (Continuing Deficiency Correction)

LOCATION: The Casey Fork and Big Muddy Subimpoundment Dams are located in the upper reaches of the Rend Lake project, approximately 12 miles north of the city of Benton in Jefferson County, Illinois.

DESCRIPTION: The recommended plan will correct design deficiencies and prevent destruction of habitat and damage to wildlife. All work is programmed.

AUTHORIZATION: The original project was authorized by the Flood Control Act of 23 October 1962, as amended by Public Law 88-122.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable.

TOTAL BENEFIT-COST RATIO: Not applicable.

INITIAL BENEFIT-COST RATIO: Not applicable.

BASIS OF BENEFIT-COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA

	STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project		0	Being Determined

PHYSICAL DATA

Dams: 2 Subimpoundment

The proposed plan provides for constructing a sheetpile cut-off wall at both subimpoundment dams to minimize leakage. It also provides for replacing stone protection material at one dam for additional protection during overtopping events.

Original Project		
Actual Federal Cost		$45,437,000 [1]
Actual Non-Federal Cost		9,941,000
Cash Contributions	$3,837,000	
Other Costs	6,104,000	
Total Original Project Cost		$55,378,000

Remedial Work		ACCUM. PCT. OF ST. FED. COST (Remedial Work Only)
Estimated Federal Cost	$5,880,000	
Estimated Non-Federal Cost	0	
Total Estimated Remedial Cost	$5,880,000	
Total Estimated Project Cost	$61,258,000	
Allocations to 30 September 1995	0	
Conference Allowance for FY 1996	300,000	
Allocation for FY 1996	275,000 [2]	
Allocations through FY 1996	275,000	5
Allocation Requested for FY 1997	500,000	13
Programmed Balance to Complete after FY 1997	5,105,000	

[1] Includes $999,100 received from Area Redevelopment Administration.

[2] Reflects $25,000 reduction assigned as savings and slippage

JUSTIFICATION: The subimpoundment dams were intended to allow variations in the water level of the upstream pools, independently of the main pool level, to provide habitat for fish and wildlife (primarily waterfowl). The dams leak, requiring the Illinois Department of Natural Resources to pump extra water into the pools or to prematurely draw-down the pools when excessive through-flows cause concern. When the dams are overtopped during storm events (a common occurrence, provided for during design), increasingly severe damage has occurred. It is presently believed that even a moderate overtopping event could cause the Casey Fork subimpoundment dam to fail, thus destroying fish and wildlife habitat. (The Big Muddy subimpoundment dam has stone and is considered sufficient to withstand overtopping events.) Failure of the dams would also eliminate their silt-trapping capability, leading to increased turbidity in the main pool and a decline in the volume of storage for flood control and water supply purposes. Average annual benefits of the design deficiency correction project have not been quantified.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue:	
Sheet Piling Transportation and Gatewell Repairs	$452,000
Planning, Engineering, and Design	18,000
Supervision and Administration	30,000
Total	$500,000

NON-FEDERAL COST: It is anticipated that the Illinois Department of Natural Resources will continue to operate and maintain the facilities under the terms of an existing Memorandum of Understanding, at an estimated cost of $25,000 per year.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Operate the subimpoundment facilities and perform routine maintenance	0	$25,000

STATUS OF LOCAL COOPERATION: The Illinois Department of Natural Resources operates and maintains the existing subimpoundment facilities under the terms of a Memorandum of Understanding executed 24 May 1984. Performance under these provisions has been satisfactory. As no sharing of first costs will be required and as a workable Operation and Maintenance Agreement is already in effect, it is not believed that execution of a separate Project Cooperation Agreement (PCA) will be necessary.

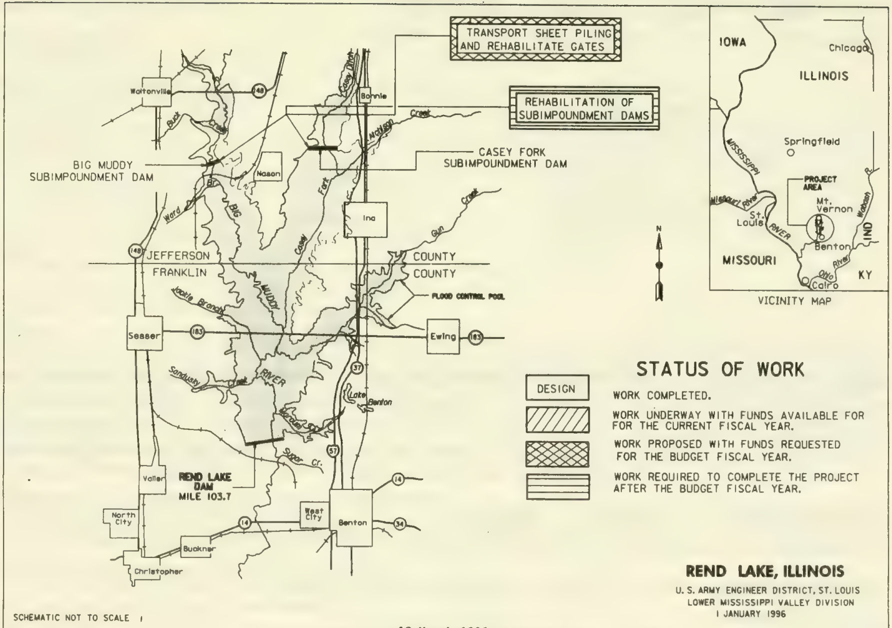
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $5,880,000 is an increase of $580,000 over the latest estimate ($5,300,000) submitted to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 520,000
Post-Contract Award and Other Estimating Adjustments (including contingency adjustments)	60,000
Total	580,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement for the overall project was revised and approved in 1976. The design deficiency correction project will provide for rehabilitating existing facilities. The

Environmental Assessment resulted in a Finding of No Significant Impact (FONSI) which was signed 30 May 1995.

OTHER INFORMATION: Previous funding included the actual cost of $45,437,000 for the construction of the original project, which was completed in Fiscal Year 1967. Funds to initiate design deficiency correction of the subimpoundment dams were appropriated in Fiscal Year 1996.



18 March 1996

89

APPROPRIATION TITLE: Construction, General - Local Protection - (Flood Control)

PROJECT: East St. Louis, Illinois (Continuing)

LOCATION: The project is located in St. Clair and Madison Counties, Illinois, along the left bank of the Mississippi River between river miles 175 and 195 above the Ohio River.

DESCRIPTION: The project consists of rehabilitation of 21 small gravity drains, 10 large gravity drains (gatewells), 20 closure structures, 300 relief wells, minor floodwall and levee rehabilitation work, rehabilitation of 12 pumping stations and 3 drainage control structures, and 6 segments of channel rehabilitation, and replacement of 3 bridge structures, and abandonment and removal of 4 bridge structures. All work, except bridges, is programmed. The bridge work, which is unprogrammed will be performed at 100 percent non-Federal cost.

AUTHORIZATION: Energy and Water Development Appropriation Act of 1988 (PL 100-202).

REMAINING BENEFIT-REMAINING COST RATIO: 26.5 to 1 at 8 7/8 percent.

TOTAL BENEFIT-COST RATIO: 10.3 to 1 at 8 7/8 percent.

INITIAL BENEFIT-COST RATIO: 9.6 to 1 at 8 7/8 percent (FY 1988).

BASIS OF BENEFIT-COST RATIO: Based on information presented in the General Design Memorandum, at October 1989 price levels.

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$28,563,000	Entire Project	71	Being Determined
Programmed Construction	$28,563,000				
Unprogrammed Construction	0				
Estimated Non-Federal Cost		12,369,000			
Programmed Construction	9,380,000				
Cash Contributions	8,765,000				
Other Costs	615,000				
Estimated Non-Federal Cost					
Unprogrammed Construction	2,989,000				
Other Cost	2,989,000				
Total Estimated Programmed Construction Cost		37,943,000			
Total Estimated Unprogrammed Construction Cost		2,989,000			
Total Estimated Project Cost		40,932,000			
Allocations to 30 September 1995		18,867,000			
Conference Allowance for FY 1996		3,700,000			
Allocation for FY 1996		3,393,000 [1]			
Allocations through FY 1996		22,260,000	78		
Allocation Requested for FY 1997		2,300,000	86		
Programmed Balance to Complete after FY 1997		4,003,000			
Unprogrammed Balance to Complete after FY 1997		0			

PHYSICAL DATA	
Small Gravity Drains	21
Large Gravity Drains	10
Closure Structures	20
Relief Wells	300
Floodwall & Levee Work	Minor
Pumping Stations	12
Drainage Control Structures	3
Bridge Replacements	3
Bridge Abandonment and Removal	4
Channels	6 segments

JUSTIFICATION: The original project, authorized by the Flood Control Act of 1936, provides protection for 85,000 acres of business, industrial and residential areas, including East St. Louis, Granite City, Madison, Venice, Brooklyn, Fairmont and Sauget, Illinois. Urban design flood protection is provided for a Mississippi River flood stage of 52 feet on the St. Louis, Market Street gage. The rehabilitation project was authorized by the Energy and Water Development Appropriations Act of 1988. As a result of failure of a deteriorated roller gate, localized flooding occurred in 1986 causing the evacuation of 1,200 persons and an estimated $35,000,000 in damages. The need for extensive rehabilitation work was verified during preparation of a General Design Memorandum for the project during Fiscal Year 1990. The extensive rehabilitation work needed is the result of several decades of deferral of needed project maintenance due to the limited financial capability of the local sponsor, Metro East Sanitary District. A tax referendum, which was passed in February 1989, will provide Metro East Sanitary District with increased tax revenue necessary to cost share in the rehabilitation project and to perform the necessary maintenance of the project after the rehabilitation is completed. The average annual benefits, all flood control, are $30,159,000.

[1] Reflects $307,000 reduction assigned as savings and slippage.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate:	East St. Louis Sewer Rehabilitation	$ 173,000
	Small Gravity Drains	135,000
Initiate & Complete:	Harding Ditch Excavation & Clearing	459,000
	Horseshoe Lake Gravity Drains	168,000
Complete:	North and Venice Pump Station	27,000
	Structural/Architectural Rehabilitation	120,000
Planning, Engineering & Design		810,000
Supervision & Administration		408,000
Total		$2,300,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$ 655,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary for the construction of the project.	2,949,000	
Pay 23.49 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, as determined under Section 103 (m) of the Water Resources Development Act of 1986.	8,765,000	
Total Non-Federal Costs	$12,369,000	

Local interests are also required to operate and maintain all works after completion.

STATUS OF LOCAL COOPERATION: The local sponsor, the Metro East Sanitary District, is strongly supportive of the project. A tax referendum to provide sufficient funds for local sponsorship of the project was passed in February 1989. Four Project Cooperation Agreements will be utilized for this project. The Project Cooperation Agreement for the first construction item was executed in November 1989. The second Project Cooperation Agreement was executed on 11 December 1990. The third Project Cooperation Agreement was executed on 11 March 1992. An amendment to the third Project Cooperation Agreement, which provides for the local sponsor to be credited for costs of work-in-kind (Clearing & Excavation of Drainage Channels) was executed on 9 August 1994. On 14 May 1995 the local sponsor notified the Corps of Engineers that they lacked the capability to perform the work-in-kind as executed in the amendment to the third Project Cooperation Agreement. The Canteen Creek Drainage District submitted a letter of intent, dated 19 January 1995, to serve as the local sponsor for the Canteen Creek portion of the project. The Project Cooperation Agreement is scheduled to be executed in January 1997.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $28,563,000 is a decrease of $137,000 from the latest estimate ($28,700,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ - 99,000
Post Contract Award and Other Estimating Adjustments (Including contingency adjustments)	- 38,000
Total	$ -137,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The project consists of rehabilitation of existing facilities and, for the major part of the project, will not affect environmental conditions except for short-term localized impacts. An environmental assessment has been prepared for items to be rehabilitated under each of the three local cost sharing agreements that will be used to complete this project.

OTHER INFORMATION: Funds to initiate construction were appropriated in Fiscal Year 1988.

The project requires no mitigation.

PROJECT AREA
ST. LOUIS
ILLINOIS
MISSOURI
VICINITY MAP
ILLINOIS
STATUS OF WORK
WORK COMPLETED.
WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR..
WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR.
LIMIT OF PROJECT
MADISON COUNTY
ST. CLAIR COUNTY
EAST ST. LOUIS
LIMIT OF PROJECT
LIMIT OF PROJECT
CHAIN OF ROCKS CANAL
PUMPING STATIONS
PUMPING STATIONS
PUMPING STATIONS
PUMPING STATIONS
LEGEND
LEVEE
PUMP STATION
LOW DAM
CHANNELS
ST. LOUIS COUNTY
MISSOURI
DAM 27
ST. LOUIS
Cahokia
PUMPING STATIONS
BRIDGE MODIFICATION PROPOSED BY LOCAL INTEREST
CHANNELS
LEVEE & FLOODWALLS
CAHOKIA LOW WATER DAM
SCHEMATIC NOT TO SCALE
EAST ST. LOUIS
ILLINOIS
U. S. ARMY ENGINEER DISTRICT, ST. LOUIS
LOWER MISSISSIPPI VALLEY DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Aloha-Rigolette, Louisiana (Continuing)

LOCATION: The project is located in north-central Louisiana between the towns of Winnfield and Pineville on the left descending bank of the Red River.

DESCRIPTION: The recommended plan consists of a three-barrel floodgate structure installed at the mouth of Bayou Darrow to reopen it to the Red River, 8.2 miles of clearing and snagging of Bayou Darrow from its mouth upstream, construction of a closure and low-flow structure on Bayou Rigolette just below its junction with Bayou Darrow, and realignment of Sam's Bayou and appropriate mitigation features. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1990.

REMAINING BENEFIT-REMAINING COST RATIO: 1.3 to 1 at 8-1/2 percent.

TOTAL BENEFIT-COST RATIO: 1.2 to 1 at 8-1/2 percent.

INITIAL BENEFIT-COST RATIO: 1.2 to 1 at 8-7/8 percent (FY 1989).

BASIS OF BENEFIT-COST RATIO: Benefits are from Aloha-Rigolette Area, LA, Feasibility Study Final Report, June 1988; approved 11 April 1990 at 1988 price levels. Costs are based on October 1995 prices deflated to October 1988 price levels.

SUMMARIZED FINANCIAL DATA

			ACCUM. PCT. OF EST. FED. COST
Estimated Federal Cost		$7,333,000	
Estimated Non-Federal Cost		2,444,000	
Cash Contribution	$1,970,000		
Other Costs	474,000		
Total Estimated Project Cost		$9,777,000	
Allocations to 30 September 1995		2,249,000	
Conference Allowance for FY 1996		2,379,000	
Allocation for FY 1996		1,172,000[1]	
Allocations through FY 1996		3,421,000	47
Allocation Requested for FY 1997		1,600,000	68
Programmed Balance to Complete after FY 1997		2,312,000	
Unprogrammed Balance to Complete after FY 1997		0	

STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	0	Being Determined

PHYSICAL DATA

Channels and Canals: 8.2 miles of clearing and snagging

Floodgates: Three 10- by 10-foot by 190 feet long Closure and Low-Flow Structure on Bayou Rigolette

Realignment of Sam's Bayou
Mitigation: 542 acres - Reforestation
397 acres - Overwintering water-fowl habitat
308 acres - Flowage easement below Iatt Lake

JUSTIFICATION: In the mid-1950's, flood control improvements were constructed consisting of a levee along the Red River and two 10- by 10-foot culverts with floodgates in the levee at the mouth of Bayou Rigolette to prevent flood damages. The floodgates serve as the only means of evacuating water from the Basin. Since the mid-1950's, agricultural development in the Basin has increased dramatically; therefore, the amount of rainfall runoff has increased. The streams in the area and the existing floodgates are now overtaxed by Basin runoff. Consequently, runoff from moderate floods, such as those which occur every 2 to 3 years, causes streambank overflow in the alluvial plain and the headwater ponding at the floodgates. On an average annual basis, approximately 6,496 acres of cleared land are flooded. The average annual acres flooded are reduced 78 percent with the recommended plan. The average annual benefits, all flood control, are $1,044,000 based on October 1988 price levels.

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[1] Reflects reduction of $197,000 assigned as savings and slippage, and $386,000 reprogrammed from the project and $624,000 revoked due to flood control and coastal emergencies.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue:	
Bayou Darrow, Item 1	536,000
Bayou Rigolette, Item 2	777,000
Initiate:	
Item 3	150,000
Planning, Engineeing and Design	20,000
Supervision and Administration	117,000
Total	$1,600,000

NON-FEDERAL COSTS: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$ 474,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	0	
Pay 5 percent of the costs allocated to flood control to bring the total non-Federal share of flood control and mitigation costs to 25 percent and bear all costs and responsibilities for operation, maintenance, repair, rehabilitation, and replacement of flood control and mitigation facilities.	1,970,000	$27,000
Total Non-Federal Costs	$2,444,000	$27,000

The non-Federal sponsor has agreed to provide all lands, easements, rights-of-way, and relocations necessary for project construction, make all required payments concurrently with project construction, and bear all cost and responsibility associated with operation and maintenance, repair, rehabilitation, and replacement over the life of the project.

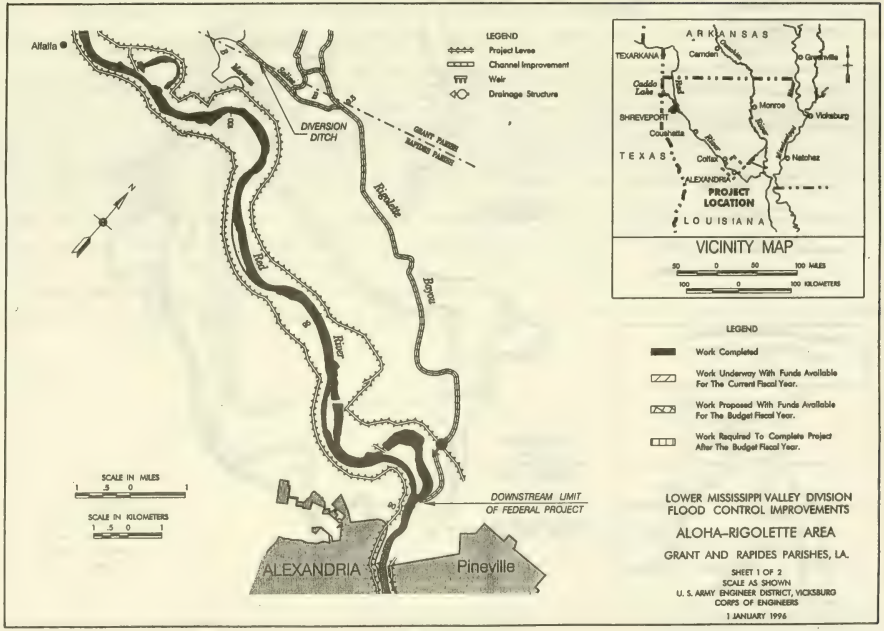
STATUS OF LOCAL COOPERATION: The city of Colfax, LA, has agreed to cost share this project. The Project Cooperation Agreement was executed 19 September 1994. The current non-Federal cost estimate is $2,444,000 which includes a cash contribution of $1,970,000. The non-Federal sponsor indicated that it is financially capable and willing to contribute the increased non-Federal share. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implemental plan for meeting its financial commitment.

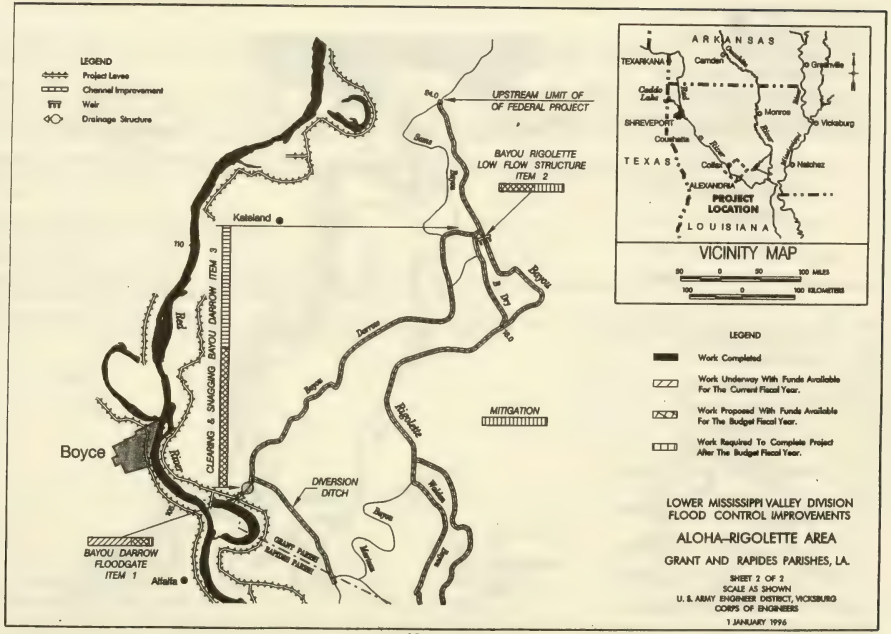
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $7,333,000 is an increase of $255,000 from the latest estimate of $7,078,000 presented to Congress (FY 1996). This change includes the following items:

Item	Change
Price escalation on Construction Items	$248,000
Price escalation on Real Estate Items	7,000
Total	$255,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with the Environmental Protection Agency and listed on the Federal Register on 17 November 1989.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1990, and funds to initiate construction were appropriated in Fiscal Year 1992.


Alfalfa
LEGEND
Project Levee
Channel Improvement
Weir
Drainage Structure
DIVERSION DITCH
GRANT PARISH
RAPIDES PARISH
Rigolette
Bayou
Red
River
SCALE IN MILES
1 .5 0 1
SCALE IN KILOMETERS
1 .5 0 1
DOWNSTREAM LIMIT OF FEDERAL PROJECT
ALEXANDRIA
Pineville
ARKANSAS
TEXARKANA
Camden
Greenville
Caddo Lake
SHREVEPORT
Monroe
Vicksburg
Coushatta
TEXAS
Natchez
Colfax
ALEXANDRIA
PROJECT LOCATION
LOUISIANA
VICINITY MAP
50 0 50 100 MILES
100 0 100 KILOMETERS
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
LOWER MISSISSIPPI VALLEY DIVISION
FLOOD CONTROL IMPROVEMENTS
ALOHA-RIGOLETTE AREA
GRANT AND RAPIDES PARISHES, LA.
SHEET 1 OF 2
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996


LEGEND
Project Levee
Channel Improvement
Weir
Drainage Structure
UPSTREAM LIMIT OF OF FEDERAL PROJECT
BAYOU RIGOLETTE LOW FLOW STRUCTURE ITEM 2
Kateland
CLEARING & SNAGGING BAYOU DARROW ITEM 3
Bad
Boyce
Bayou
Darrow
Rigolette
MITIGATION
DIVERSION DITCH
GRANT PARISH
RAPIDES PARISH
BAYOU DARROW FLOODGATE ITEM 1
Altalia
ARKANSAS
TEXARKANA
Camden
Greenville
Caddo Lake
SHREVEPORT
Monroe
Vicksburg
Coushatta
TEXAS
Colfax
Natchez
ALEXANDRIA
PROJECT LOCATION
LOUISIANA
VICINITY MAP
50 0 50 100 MILES
100 0 100 KILOMETERS
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
LOWER MISSISSIPPI VALLEY DIVISION
FLOOD CONTROL IMPROVEMENTS
ALOHA-RIGOLETTE AREA
GRANT AND RAPIDES PARISHES, LA.
SHEET 2 OF 2
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Lake Pontchartrain, Louisiana, and Vicinity (Hurricane Protection)(Continuing)

LOCATION: The project is located in St. Charles, Jefferson, Orleans, St. Bernard and St. Tammany Parishes in southeast Louisiana in the general vicinity of New Orleans, adjacent to Lake Pontchartrain.

DESCRIPTION: The recommended plan consists of a new levee north of US HWY 61, from the east Bonnet Carré Spillway guide levee to the Jefferson-St. Charles Parish boundary; a floodwall along the Jefferson-St. Charles Parish line; an enlarged levee along the Jefferson Parish lakefront; an enlarged New Orleans lakefront levee landward of the seawall including parallel flood protection on the 17th Street, Orleans Avenue, and London Avenue outfall canals; a new and enlarged levee and floodwall along both sides of the Inner Harbor Navigation Canal (IHNC); a new levee and floodwall along the lakefront from the airport to South Point; an enlarged levee from South Point to the Gulf Intracoastal Waterway (GIWW); an enlarged levee and new floodwall along the northside of the Mississippi River-Gulf Outlet (MR-GO) and GIWW; a new levee in the Chalmette area from the IHNC levee along the south bank of the MR-GO to approximately 2-1/2 miles northwest of Verret and west to the Mississippi River levee near Caernarvon; a strengthened Mandeville seawall on the north shore at present height; and a new pumping station and vertical lift gates for the Florida Avenue Complex. The parallel protection work for Orleans and London Avenue Outfall canals is unprogrammed after FY 1997.

AUTHORIZATION: Flood Control Act of 1965; Water Resources Development Acts of 1974, 1986, 1990, and 1992.

REMAINING BENEFIT TO REMAINING COST RATIO: 3.4 to 1 at 3 1/8 percent.

TOTAL BENEFIT - COST RATIO: 3.0 to 1 at 3 1/8 percent.

INITIAL BENEFIT-COST RATIO: 17.6 to 1 at 3-1/8 percent (FY 1967).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation dated December 1982 at 1981 price levels.

SUMMARIZED FINANCIAL DATA

				STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Total Appropriation Requirement			$504,000,000			
Programmed Construction		$470,318,000		New Orleans East Unit	90	1
Unprogrammed Construction		33,682,000		New Orleans West Unit	12	1
				Mandeville Unit	100	2
Future Non-Federal Reimbursement			7,000,000	Chalmette Unit	98	1
Programmed Construction		7,000,000		Entire Project	80	1
Unprogrammed Construction		0				
Estimated Federal Cost (Ultimate)			497,000,000			
Programmed Construction		463,318,000				
Unprogrammed Construction		33,682,000				
Estimated Non-Federal Cost			210,000,000.00			
Programmed Construction		208,056,000				
Cash Contribution	$ 71,918,000					
Other Costs	129,138,000					
Reimbursements:						
Hurricane Protection	7,000,000					
Unprogrammed Construction		1,944,000				
Cash Contribution	0					
Other Costs	1,944,000					
Reimbursements	0					
Total Estimated Programmed Construction Cost			$671,374,000			
Total Estimated Unprogrammed Construction Cost			35,626,000			
Total Estimated Project Cost			$707,000,000			
Allocations to 30 September 1995			316,149,000	ACCUM.		
Conference Allowance for FY 1996			13,348,000	PCT. OF EST.		
Allocation for FY 1996			13,348,000	FED. COST		
				65		
Allocations through FY 1996			329,497,000	66		
Allocation Requested for FY 1997			4,025,000			
Programmed Balance to Complete after FY 1997			136,796,000			
Unprogrammed Balance to Complete after FY 1997			33,682,000			

PHYSICAL DATA

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[1] Being determined.

[2] Work accomplished by the FY 1992 Dire Emergency Supplemental under Appropriation 96x3125, Flood Control and Coastal Emergencies.

Levees: Average Height: 16 feet
Length: 80 miles

Drainage Structures: 9

Dam Closures: 2

Floodwalls: 17.9 miles

Pumping Plant: 1

Floodgates: 2

Control Valve Structures: 3

JUSTIFICATION: The lowlands in the Lake Pontchartrain tidal basin are subject to tidal overflow. The Greater New Orleans Metropolitan Area which lies in this basin will continue its rapid economic development in the future years even though severe damages have resulted from several hurricanes in the past years. Hurricane damages result from surges entering Lake Pontchartrain from Lake Borgne through natural tidal passes at the Rigolets and Chef Menteur Passes and the Inner Harbor Navigation Canal. The surges are intensified by local wind effects and the combination of waves and surges causing overtopping of the pre project protective works along the shores of Lake Pontchartrain. The eastern portion of the area is also subject to flooding by surges and waves that move directly from Lake Borgne and overtop the then existing inadequate protective system seaward of the developed land areas. As a result, residences and industrial and commercial establishments suffer damage, business activities are disrupted, lives are endangered, and hazards to health are created. Hurricanes much more severe than any of record are possible. In the event of the occurrence of such a severe hurricane, catastrophic property damage and loss of human life would be experienced. Local interests have requested protection against these threats to life and property. Hurricane Betsy in September 1965 caused extensive damage and flooding of urban areas of the New Orleans area to depths of up to 10 feet. Hurricane Camille occurred in the project area in August 1969 and flooded areas along the Inner Harbor Navigation Canal. Extensive flooding and overtopping of levees would have occurred in the project area in September 1974 if Hurricane Carmen had continued on its predicted course. In 1985 Hurricane Juan caused extensive flooding in the St. Charles Parish area. The Lake Pontchartrain hurricane protection project will provide protection from similar occurrences. The project will provide protection against flooding from the Standard Project Hurricane (SPH). The average annual benefits, all flood control, are $95,771,000.

FISCAL YEAR 1997: The requested amount will be applied as follows:

NEW ORLEANS EAST UNIT	
Continue:	
17th Str Outfall Canal Bridge	$ 500,000
Complete:	
Orleans Marine Ph 4	600,000
Federal Real Estate Support	6,000
Surveys and Layouts	25,000
Supervision and Administration	80,000
Subtotal	$ 1,211,000
NEW ORLEANS WEST UNIT	
Complete:	
LV NOA Rch IIA 1st Lift	361,000
Mitigation	1,339,000
Federal Real Estate Support	20,000
Survey and Layouts	45,000
Planning, Engineering and Design	669,000
Supervision and Administration	280,000
Subtotal	$ 2,714,000
CHALMETTE UNIT	
Surveys and Layouts	50,000
Planning, Engineering and Design	50,000
Subtotal	$ 100,000
Total	$ 4,025,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Flood Control Act of 1965, the non-Federal sponsors must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, and right-of-ways, and borrow and excavated or dredged material disposal areas.	$ 42,979,000	-
Accomplish alterations to roads, pipelines, cables, wharves, oil wells, and any other facilities necessary for construction of the project.	19,911,000	-
Pay 30 percent of the total project cost, including the items listed above and a cash contribution or equivalent work specifically undertaken as an integral part of the project after authorization and in accordance with construction schedules as required by the Chief of Engineers, excluding a reimbursement to the Federal Government for costs allocated pursuant to the Water Resources Development Act of 1974.	140,110,000	-
Reimburse the Federal Government for costs allocated pursuant to the Water Resources Development Act of 1974.	7,000,000	-
Pay all costs of operations, maintenance, repair, rehabilitation, and replacements of all features of the project works.		$1,223,000
Total Non-Federal Costs	$210,000,000	$1,223,000

In addition, local interests, through the combined efforts of the State of Louisiana, local levee and drainage districts, and parish police juries, have spent an estimated $25,366,000 between 1930-1963, based on the best cost records available, to improve and maintain the hurricane protection system existing prior to project authorization. Available costs of record are as follows:

Combination of State of Louisiana and Lake Borgne Levee District and Chalmette Back Levee District on the Chalmette Back Levee Protection Systems	4,410,000
Orleans Levee District	12,010,000
Port of New Orleans (levees along Industrial Canal)	924,000
Pontchartrain Levee District	5,022,000
Fourth Drainage District of Jefferson Parish	3,000,000
Total	25,366,000

A very severe hurricane, "Betsy," occurred in the project area in September 1965, just prior to the authorization of the project in October 1965. Considerable damage was done to many of the existing levees, and local interests immediately instituted an accelerated rehabilitation program, with the view of restoring and strengthening existing protection prior to succeeding hurricane seasons. Any work performed by the non-federal interests after project authorization, that conforms to the project design criteria and alignment, is considered as work-in-kind in lieu of a cash contribution.

STATUS OF LOCAL COOPERATION: Assurances are required for the two independently justified plans.

1. Chalmette Area Plan:

a. Orleans Levee District: New agreements of assurances covering all project cooperation requirements and a deferred payment plan as authorized by the Water Resources Development Act of 1974 were executed on 30 March 1976. These assurances were accepted on behalf of the United States on 7 December 1977.

b. St. Bernard Parish Police Jury and Lake Borgne Basin Levee District: New joint agreements of assurances covering all project cooperation requirements and a deferred payment plan as authorized by the Water Resources Development Act of 1974, were executed on 2 April 1976. These assurances were accepted on behalf of the United States on 7 December 1977.

2. High Level Plan:

a. Orleans Levee District: For the Barrier Plan, new agreements of assurances covering all project cooperation requirements and a deferred payment plan as authorized by the Water Resources Development Act of 1974, were executed on 30 March 1976. These assurances were accepted on behalf of the United States on 7 December 1977. Amended assurances for the High Level Plan were executed by the local sponsor on 29 May 1985, and accepted by the United States on 21 June 1985.

b. St. Tammany Parish: The Louisiana Office of Public Works executed an act of assurance dated 8 November 1976, agreeing to fulfill all project cooperation requirements for that portion of the project in St. Tammany Parish. These assurances were accepted on behalf of the United States on 7 December 1977. Amended assurances for the High Level Plan are required; however, due to failure of the local sponsor to agree to the items of local cooperation, this portion of the project has an indefinite completion date.

c. Pontchartrain Levee District: New agreements of assurances covering all project cooperation requirements and a deferred payment plan as authorized by the Water Resources Development Act of 1974, were executed on 20 September 1976. On 8 November 1976, the Louisiana Office of Public Works agreed to lend financial assistance above $100,000 to the Pontchartrain Levee District for that portion of the Barrier Plan which is the responsibility of that levee district. These assurances were accepted on behalf of the United States on 7 December 1977. Supplemental assurances for the High Level Plan were executed by the Pontchartrain Levee District for the St. Charles Parish portion of the project on 20 April 1987, and accepted on behalf of the United States on 7 August 1987.

d. East Jefferson Levee District: Supplemental assurances for the High Level Plan were executed by the East Jefferson Levee District for the Jefferson Parish portion of the project on 16 January 1987. A financial plan was received on 25 November 1987, and accepted on behalf of the United States on 21 December 1987. These levees were previously the responsibility of the Pontchartrain Levee District.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $504,000,000 is a decrease of $11,000,000 from the latest estimate ($515,000,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$-11,000,000
Total	$-11,000,000

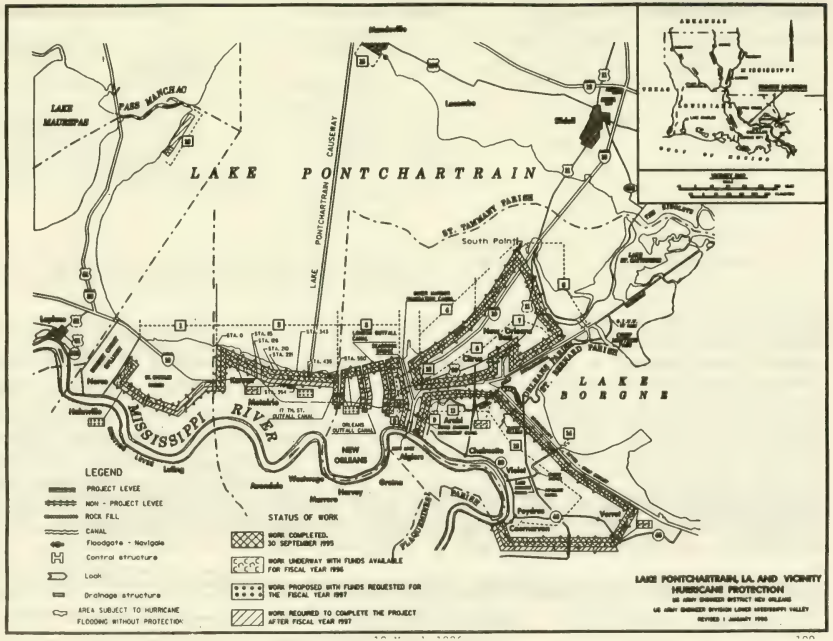
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 17 January 1975. By court order dated 30 December 1977, a revised Environmental Impact Statement was ordered. A draft revised Environmental Impact Statement for the High Level Plan and the Reevaluation Report, which documents the proposal to adopt that plan instead of the Barrier Plan, were released to the public and filed with the Environmental Protection Agency on 16 December 1983. The final revised Environmental Impact Statement was filed with the Environmental Protection Agency on 7 December 1984.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1966, and funds to initiate construction were appropriated in Fiscal Year 1967.

Authorizations		Estimated Cost and Year of Price Level
FC Act of 1965 dated 27 October 1965 (PL 89-298) (HD 231/89/1)	A program for protection from hurricane flood levels at New Orleans, LA and surrounding areas by means of levees, floodwalls, control structures, navigation structures, locks, dams and drainage structures.	$56,235,000 (1961)[1]
Water Resources Development Act of 1974 dated 7 March 1974 (PL 93-251) Section 92	A modification of the FC Act of 1965 (PL 89-298) to provide that non-Federal public bodies may agree to pay the unpaid balance of the cash payment due with interest, in yearly installments.	
Water Resources Development Act of 1986, dated 17 November 1986 (PL 99-662), Section 805	A modification of the project to include construction of a floodwall with sluice gates or other necessary means to ensure that hurricane-flood protection within Jefferson Parish will be unimpaired as a result of any pumping station constructed by local interests.	$3,500,000 (1985)

[1] This is net cost to the Federal Government. The gross cost is $60,185,000. The difference is $3,950,000, which is capitalized value at 3-1/8 percent interest over 100 years for O&M on Rigolets Lock which is to be contributed by local interests and used by the Federal government for project construction.

Authorizations		Estimated Cost and Year of Price Level
Water Resources Development Act of 1990, dated 28 November 1990 (PL 101-640) Section 116(k)	A restudy of and report on project benefits to determine whether or not sponsors have received expected benefits and whether or not there should be a reallocation of costs as a result of any unrealized expected benefits. No non-Federal payment for the St. Bernard Parish portion of project was required during the study period (28 November 1990 - 28 November 1991)	
Water Resources Development Act of 1992, dated 31 October 1992 (PL 102-580) Section 102(j)(2)	A reevaluation of the reallocation of project cost based on the benefit study required by the WRDA 1990 Sec. 116K	
Water Resources Development Act of 1992, dated 31 October 1992 (PL 102-580) Section 102(j)(1)	A modification to the project to include conveying landsite runoff from the Jefferson Parish Lakefront levee from the levee right-of-way to the street drainage system.	


LAKE PONTCHARTRAIN
LAKE MAUREPAS
PASS MANCHAC
LAKE PONTCHARTRAIN CAUSEWAY
ST. TAMMANY PARISH
South Point
LAKE BORGNE
MISSISSIPPI RIVER
NEW ORLEANS
Metairie
Kenner
Harvey
Gretna
Marrero
Avondale
Waggaman
Jefferson
Arabi
Chalmette
Violet
Poydras
Caernarvon
Verret
Norco
Reserve
Laplace
Hahnville
Luling
Lutcher
Gramercy
Lacombe
Mandeville
Slidell
ARKANSAS
MISSISSIPPI
TEXAS
LOUISIANA
GULF OF MEXICO
LEGEND
PROJECT LEVEE
NON - PROJECT LEVEE
ROCK FILL
CANAL
Floodgate - Navigate
Control structure
Lock
Drainage structure
AREA SUBJECT TO HURRICANE FLOODING WITHOUT PROTECTION
STATUS OF WORK
WORK COMPLETED. 30 SEPTEMBER 1995
WORK UNDERWAY WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR THE FISCAL YEAR 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997
LAKE PONTCHARTRAIN, LA. AND VICINITY
HURRICANE PROTECTION
US ARMY ENGINEER DISTRICT NEW ORLEANS
US ARMY ENGINEER DIVISION LOWER MISSISSIPPI VALLEY
REVISED 1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Larose to Golden Meadow, Louisiana (Hurricane Protection) (Continuing)

LOCATION: The project is located in Lafourche Parish, Louisiana, about 28 miles southwest of New Orleans and about 25 miles inland from the Gulf of Mexico along Bayou Lafourche, south of the Gulf Intracoastal Waterway, extending from Larose to Golden Meadow, a distance of about 16 miles.

DESCRIPTION: The project consists of a ring levee approximately 40 miles in length encircling the areas along Bayou Lafourche from Larose to Golden Meadow and extending approximately 9,800 feet from each side of the bayou. Enlargement of about 3 miles of the existing levee at Golden Meadow and construction of floodgates on Bayou Lafourche at the upper and lower limits of the protection system would be used for navigation and hurricane protection purposes. Approximately 8 miles of low interior levees and eight multi-barrelled culverts controlled by flap gates are needed to regulate intercepted drainage. All of the project work is programmed.

AUTHORIZATION: Flood Control Act of 1965.

REMAINING BENEFIT - REMAINING COST RATIO: 20.3 to 1 at 3-1/4 percent.

TOTAL BENEFIT - COST RATIO: 1.9 to 1 at 3-1/4 percent.

INITIAL BENEFIT - COST RATIO: 1.4 to 1 at 3-1/4 percent (FY 1972).

BASIS OF BENEFIT - COST RATIO: Benefits are based on General Design Memorandum Number 1, and Supplement Number 1, approved 18 May 1973 at 1971 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$ 79,100,000		Entire Project	84	Being Determined
Estimated Non-Federal Cost		33,900,000				
Cash Contribution	$ 6,494,000					
Other	27,406,000					
Total Estimated Project Cost		$113,000,000				
Allocations to 30 September 1995		68,203,000				
Conference Allowance for FY 1996		1,440,000				
Allocation for FY 1996		1,106,000 [1]				
Allocations through FY 1996		69,309,000	88			
Allocation Requested for FY 1997		517,000	88			
Programmed Balance to Complete after FY 1997		9,274,000				
Unprogrammed Balance to Complete after FY 1997		0				

PHYSICAL DATA

Levees	Floodgates	Drainage Structures
Loop levees approximately 40 miles in length along both banks of Bayou Lafourche; enlargement of three miles of levees at Golden Meadow; eight miles of low interior levee to regulate intercepted drainage.	Two	Eight multibarreled culverts

JUSTIFICATION: The project area is of great economic importance to the State of Louisiana, and includes lands and improvements having an aggregate value of approximately $203,904,000 (1995 prices). The population of the area was 20,000 in 1980 and has increased steadily. While oil and gas production, commercial fisheries, and related service industries dominate the economy of the area, there is a wide spectrum of economic activity.

Situated within a region of high hurricane incidence (on the average, two hurricanes threaten the Louisiana coast every three years), the project area is highly vulnerable to overflow from the tidal surges which accompany hurricanes. The highest flood stage during the hurricane of 1915 was 5.5 feet at Golden Meadow, taken from a high-water mark. Should a hurricane similar to that of 1915 move through the area, damages of approximately $10,962,000 (1995 prices) could be expected. Hurricane Juan (1985) was accompanied by flooding of 6.6 feet, as recorded on the Leeville gauge. Damages sustained during Hurricane Juan were $35,000,000 and at current prices (1995), $44,866,000. The flood duration was from two days to one week. Damages began at 3 feet, with significant damages at 4.5 feet. Should a major hurricane approaching the standard project hurricane in intensity move through the area, the entire project area would be submerged in the tidal surge and monetary damages would likely amount to $86,811,000 (1995 prices). This damage would include minor crop losses, but the bulk of the damage would consist of physical damage to residential, commercial, and industrial establishments. Residential and commercial facilities are valued at $52,000,000 (1971 prices), excluding contents, plus $3,500,000 (1971 prices), or $207,713,000 (1995 price levels). Average annual damages with the project are negligible (zero), while without the project they are $14,947,000 (1995 price levels). Flood damages prevented on future developments were determined by

[1] Reflects $119,000 reduction assigned as savings and slippage and $215,000 reprogrammed from the project.

projecting future damages at rates equal to the projected population growth and bringing them back to present value by applying a discount rate of 3-1/4 percent. Present values were then amortized for the life of the project to obtain average annual benefits on future damages prevented. The relationship between depth of flooding and percent damage of structures and contents was derived from detailed studies of flood damages in the coastal area of Louisiana for four hurricanes, Carla (1961), Hilda (1964), Betsy (1965) and Camille (1969). These in-depth studies were made for flood insurance rate studies conducted by the U.S. Army Corps of Engineers for the Federal Insurance Administration.

Lafourche Parish has been determined to be an area of "substantial and persistent" unemployment.

The project will provide protection against flooding from hurricanes having a frequency of occurrence of once in 100 years. The average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$ 4,118,000
Area Redevelopment	28,000
Total	$ 4,146,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate:	
B-North, B-South, C-South, 3rd Lift	$264,000
Complete:	
A-West, B-South, 3rd Lift	113,000
Surveys and Layouts	36,000
Planning, Engineering and Design	50,000
Supervision and Administration	50,000
Real Estate Support	4,000
Total	$517,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Flood Control Act of 1965, the Non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Provide lands, easements, and rights-of-way, including borrow and dredged material disposal areas.	$ 5,041,000	-
Accomplish alterations to roads, pipelines, cables, wharves, oil wells, and any other facilities necessary for construction of the project.	$ 7,966,000	-
Pay 30 percent of the total project cost, to include the items listed above and a cash contribution or equivalent work specifically undertaken as an integral part of the project after authorization and in accordance with construction schedules as required by the Chief of Engineers.	$20,893,000	-
Bear all cost of operation and maintenance including replacements.	-	$219,000
Total Non-Federal Cost	$33,900,000	$219,000

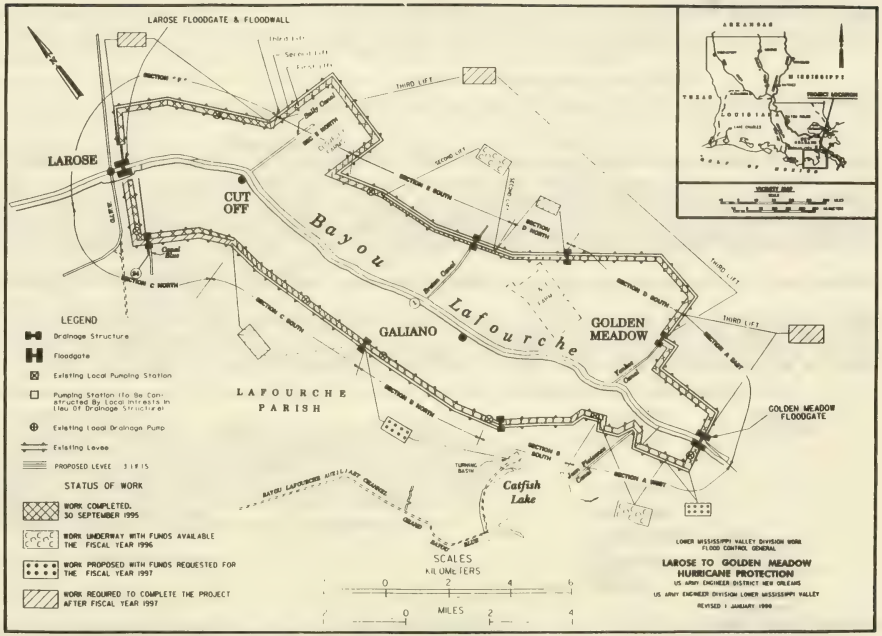
The Non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: Assurances covering all requirements of local cooperation were received from the South Lafourche Levee District and accepted on behalf of the United States on 29 August 1973. The South Lafourche Levee District has requested and received funds from the State of Louisiana for rights-of-way acquisition and relocations required to support construction work. In addition to lands and damages and relocations, the South Lafourche Levee District has accomplished $5,300,000 in levee construction, $6,624,000 in pumping station and lateral levee construction, and $1,730,000 in administrative/operating costs.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $79,100,000 is the same as the latest estimate ($79,100,000) presented to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with the Council on Environmental Quality on 13 May 1974. A draft supplement to the Environmental Impact Statement covering the revised levee alignments, previously unidentified wetland impacts, and necessary mitigation, was filed with the Environmental Protection Agency on 20 July 1984, and the final supplement was filed with the Environmental Protection Agency on 1 March 1985. An Environmental Assessment covering the revised levee alignment for Section D-North was distributed for review on 3 December 1990, and a Finding of No Significant Impact for the revised alignment was signed on 8 March 1991.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1967, and funds to initiate construction were appropriated in Fiscal Year 1972.


LAROSE FLOODGATE & FLOODWALL
Inland Lift
Second Lift
First Lift
Third Lift
Second Lift
SECTION "F"
SECTION B NORTH
SECTION B SOUTH
SECTION D NORTH
SECTION D SOUTH
SECTION C NORTH
SECTION C SOUTH
SECTION A NORTH
SECTION A SOUTH
LAROSE
CUT OFF
Bayou Lafourche
GALIANO
GOLDEN MEADOW
LAFOURCHE PARISH
Catfish Lake
TURNING BASIN
GOLDEN MEADOW FLOODGATE
BAYOU LAFOURCHE AUXILIARY DRAINAGE
LEVEE
LEGEND
Drainage Structure
Floodgate
Existing Local Pumping Station
Pumping Station (To Be Constructed By Local Interests In Lieu Of Drainage Structure)
Existing Local Drainage Pump
Existing Levee
PROPOSED LEVEE 3 1 F 15
STATUS OF WORK
WORK COMPLETED. 30 SEPTEMBER 1995
WORK UNDERWAY WITH FUNDS AVAILABLE THE FISCAL YEAR 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR THE FISCAL YEAR 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997
SCALES
KILOMETERS
0 2 4 6
MILES
0 2 4
ARKANSAS
MISSISSIPPI
TEXAS
LOUISIANA
PROJECT LOCATION
GULF OF MEXICO
VICINITY MAP
LOWER MISSISSIPPI VALLEY DIVISION WORK
FLOOD CONTROL GENERAL
LAROSE TO GOLDEN MEADOW
HURRICANE PROTECTION
US ARMY ENGINEER DISTRICT NEW ORLEANS
US ARMY ENGINEER DIVISION LOWER MISSISSIPPI VALLEY
REVISED 1 JANUARY 1990

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: New Orleans to Venice, Louisiana (Hurricane Protection)(Continuing)

LOCATION: The project is located along the east bank of the Mississippi River from Phoenix, Louisiana, approximately 28 miles southeast of New Orleans, Louisiana to Bohemia, Louisiana and from St. Jude, Louisiana, on the west bank approximately 39 miles southeast of New Orleans, Louisiana to Venice, Louisiana.

DESCRIPTION: The recommended plan on the west side of the Mississippi River consists of enlarging approximately 3 miles of existing back levee between St. Jude and City Price, Louisiana; enlarging approximately 13 miles of existing back levee between City Price and Tropical Bend, Louisiana (Reach "A") and installing two 54-inch flap-gated corrugated metal culverts; enlarging approximately 12 miles of existing back levee between Tropical Bend and Fort Jackson, Louisiana (Reach "B-1") and constructing a floodgate at Empire, Louisiana; enlarging approximately 9 miles of existing back levee between Fort Jackson and Venice, Louisiana (Reach "B-2"); and enlarging approximately 34 miles of existing Mississippi River levee from Mile 10 to Mile 44 above Head of Passes (West Bank River Levee). On the east side of the Mississippi River, the recommended plan consists of enlarging approximately 16 miles of existing back levee between Phoenix, and Bohemia, Louisiana (Reach "C") and installing ten flap-gated culverts. The entire project is programmed.

AUTHORIZATION: Flood Control Act of 1962.

REMAINING BENEFIT-REMAINING COST RATIO: 3.3 to 1 at 2-7/8 percent.

TOTAL BENEFIT-COST RATIO: 2.4 to 1 at 2-7/8 percent.

INITIAL BENEFIT-COST RATIO: 2.4 to 1 at 2-7/8 percent (FY 1964).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in February 1972 at 1971 price levels.

23-577 O - 96 - 6

SUMMARIZED FINANCIAL DATA			Accum. PCT. OF EST. FED. COST
Estimated Federal Cost		$166,000,000	
Estimated Non-Federal Cost		71,000,000[1]	
Cash Contribution	$23,646,000		
Other	47,354,000		
Total Estimated Project Cost		$237,000,000[1]	
Allocations to 30 September 1995		134,370,000	
Conference Allowance for Fiscal Year 1996		3,360,000	
Allocation for Fiscal Year 1996		2,421,000[2]	
Allocations through Fiscal Year 1996		136,791,000	82
Allocation Requested for Fiscal Year 1997		2,300,000	84
Programmed Balance to Complete After Fiscal Year 1997		26,909,000	
Unprogrammed Balance to Complete After Fiscal Year 1997		0	

STATUS: (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
St. Jude to City Price	60	Being determined
Reach "A" - City Price to Tropical Bend	61	Being determined
Reach "B-1" - Tropical Bend to Fort Jackson	86	Being determined
Reach "B-2" - Fort Jackson to Venice	92	Being determined
Reach "C" - Phoenix to Bohemia	90	Being determined
West Bank River Levee	60	Being determined
Entire Project	72	Being determined

Each reach, when complete, will provide interim protection from flooding.

[1] Cost does not include $505,000 Non-Federal work authorized by the Post Authorization Change Report for **St. Jude** to City Price Levee Enlargement, approved on 6 March 1992.

[2] Reflects $279,000 reduction assigned as savings and slippage and $660,000 reprogrammed from the project.

PHYSICAL DATA

Reach	Levees and Floodwalls	Drainage Structure
St. Jude to City Price	Enlarge approximately 3 miles	None
"A" - City Price to Tropical Bend	Enlarge approximately 13 miles	Two 54" flap-gated corrugated metal culverts.
"B-1" - Tropical Bend to Fort Jackson	Enlarge approximately 12 miles	Floodgate at Empire
"B-2" - Fort Jackson to Venice	Enlarge approximately 9 miles	None
"C" - Phoenix to Bohemia	Enlarge approximately 16 miles	Ten flap-gated culverts
West Bank River Levee	Enlarge approximately 34 miles of levee on the Mississippi River west bank from Mile 10 to Mile 44 above Head of Passes.	None

JUSTIFICATION: The project will provide protection from hurricane tidal overflow to a major part of the developed and inhabited area along the Mississippi River delta. Approximately seventy-five percent of the population and seventy percent of the improved lands within the delta are contained in the project area. Hurricanes in the past have caused overtopping of the existing protective works, resulting in extensive damage to structures, industries, other urban and rural developments, crops, and livestock. Evacuation of inhabitants has been required frequently. The most recent storm causing extensive damages, Hurricane Camille, occurred on 17 August 1969. Severe damages were sustained in Reaches B-1 and B-2 (Empire to Venice), and somewhat lesser damages were sustained in Reach A (Port Sulphur to Empire). Estimated flood damages sustained in the project area due to hurricanes are as follows:

Year of Hurricane	Actual Damages Sustained	Damages at Present Value and Conditions of Development
September 1915	$ 2,325,000	$138,994,000
September 1956 (Flossy)	1,709,000	13,538,000
September 1957 (Esther)	1,180,000	9,453,000
September 1965 (Betsy)	45,500,000	267,368,000
August 1969 (Camille)	62,500,000	261,882,000
October 1985 (Juan)	46,000,000	59,284,000

The present value and type of property subject to flood damages are as follows:

	Flood of Record	Protection by Authorized Works Against Design Flood
Number of Acres:		
Agriculture or undeveloped	11,800	11,800
Residential	2,500	2,500
Commercial	600	600
Marshland	0	0
Total	14,900	14,900
Value of Lands and Improvements:		
Lands	$216,300,000	$216,300,000
Improvements	$389,500,000	$389,500,000
Total	$605,800,000	$605,800,000

The back levees are designed for protection against hurricane-generated stages of 100-year frequency. The maximum flood of record on the east side of the Mississippi River occurred in September 1965 (Betsy). On the west side, the maximum flood occurred in August 1969 (Camille). The damages from hurricane Betsy were $45,500,000 in 1965 ($267,368,000 present). The damages from hurricane Camille were $62,500,000 in 1969 ($261,882,000 present).

The duration of flooding within the project area lasted from about three days to several weeks. The most recent flood event was hurricane Juan in October 1985.

Benefits from the project consist of reduction of flood damage from hurricane tidal overflow caused by overtopping of the existing back levees and land intensification. The average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$ 14,986,000
Mitigation	13,000
Total	$ 14,999,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Reach A	
Initiate Sta. 7-250, 2nd Enlgt	$ 300,000
Continue Sta. 314+50 - 681+80, 2nd Enlgt	879,000
Lands and Damages	8,000
Surveys and Layouts	15,000
Planning, Engineering and Design	100,000
Supervision and Administration	250,000
Subtotal	$1,552,000
Reach B-1	
Complete:	
Sta. 0-100, 4th Enlgt	$ 200,000
Grand Liard T-wall Replacement	100,000
Lands and Damages	4,000
Surveys and Layouts	3,000
Planning, Engineering and Design	49,000
Supervision and Administration	100,000
Subtotal	$ 456,000
Reach B-2	
Surveys and Layouts	$ 7,000
Planning, Engineering and Design	50,000
Subtotal	$ 57,000
West Bank River Levees	
Lands and Damages	15,000
Surveys and Layouts	20,000
Planning, Engineering and Design	200,000
Subtotal	$ 235,000
Total	$2,300,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Flood Control Act of 1962, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Cost
Provide lands, easements, and rights-of-way including borrow and dredge material disposal areas.	$ 8,632,000	-
Accomplish alterations to roads, pipelines, cables, wharves, oil wells, and any other facilities necessary for construction of the project.	5,937,000	-
Pay 30 percent of the total project cost, to include the items listed above and a cash contribution or equivalent work specifically undertaken as an integral part of the project after authorization and in accordance with construction schedules as required by the Chief of Engineers.	56,431,000	-
Bear all costs of operation, maintenance, repair, rehabilitation, and replacement.		$745,512
Subtotal Non-Federal Costs	71,000,000[1]	$745,512
Bear all of the costs of the construction of the St. Jude to City Price, LA levee enlargement in excess of the cost of the Federal Plan.	505,000	
Total Non-Federal Costs	$71,505,000	

The Non-Federal sponsor has agreed to make all required payments concurrently with project construction.

In addition, prior to project authorization, local interests expended in excess of $3,761,000 between 1 April 1926 and 31 December 1959, in the Mississippi River delta area below New Orleans for levees and interior drainage facilities to provide protection against inundation from storm tides.

STATUS OF LOCAL COOPERATION: Assurances of local cooperation for Reaches A, B-1, B-2, and C furnished by the Plaquemines Parish Commission Council were accepted on behalf of the United States on 14 April 1965. Supplemental assurances covering provisions of the Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, furnished by the Plaquemines Parish Commission Council were accepted on behalf of the United States on 20 June 1973. The local sponsor, on 29 December 1987, provided the supplemental assurances of local cooperation for the West Bank River Levee. These assurances were accepted on 28 January 1988. Supplemental assurances of local cooperation for the St. Jude to City Price, Louisiana, levee enlargement were furnished by the Plaquemines Parish Government on 21 December 1992 and were accepted on 18 February 1993.

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[1] Cost not included in Non-Federal work authorized by the Post-Authorization Change Report for St. Jude to City Price, LA Levee Enlargement, approved on 6 March 1992.

Local interests have constructed the first and second lifts of Reach C. Based on more detailed planning of construction, a third and fourth lift are required to raise the existing levees to project grade. Credit for equivalent work in lieu of a cash contribution is given upon evaluation of the construction. Local interests have been providing their required cash contributions on schedule to maintain their proportionate share of the project costs.

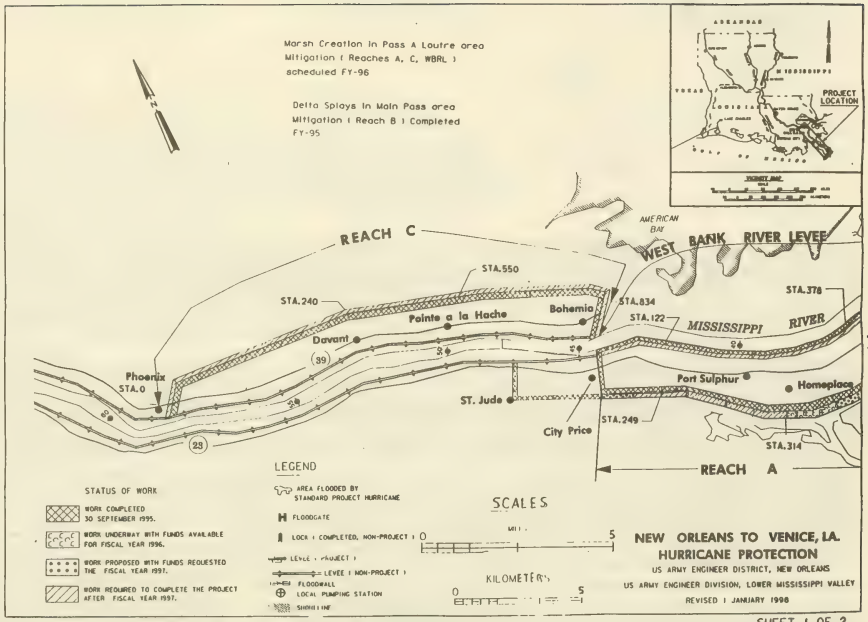
COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $166,000,000 is unchanged from the latest estimate presented to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 24 January 1975; however, during subsequent review, it became apparent that the final Environmental Impact Statement was deficient. A draft Environmental Impact Statement supplement was submitted to the Environmental Protection Agency on 23 March 1984, and the final Environmental Impact Statement supplement with a Section 404 evaluation was filed with the Environmental Protection Agency on 12 April 1985. A draft Supplemental Environmental Impact Statement (Supplement II) for work on the West Bank River Levee was submitted to the Environmental Protection Agency on 5 August 1987, and the final was submitted on 4 December 1987.

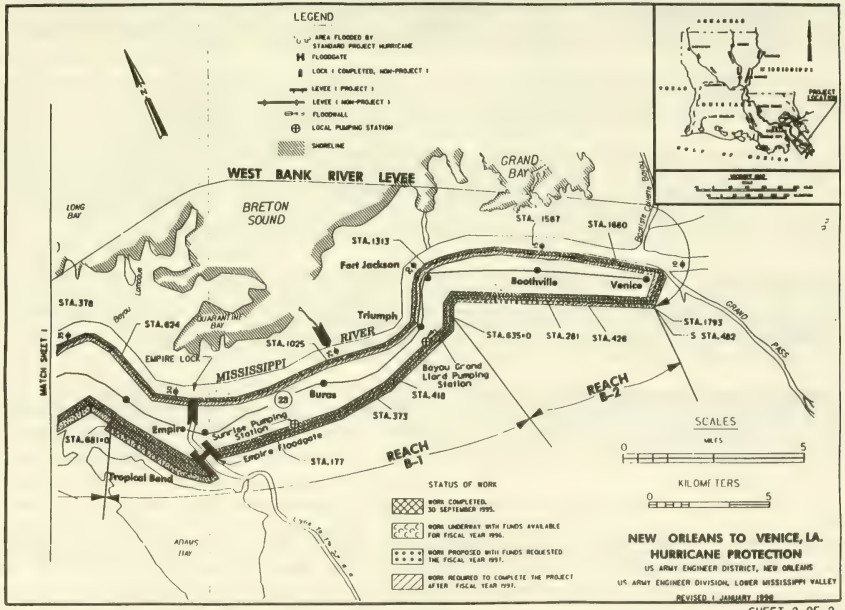
OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1963 and funds to initiate construction were appropriated in Fiscal Year 1964.

The project will impact approximately 3,000 acres of habitat (not including shallow open water). Of the 3,000 acres, 1,103 acres will be mitigated. A mitigation plan has been developed for Reach B that will produce new marsh in the Delta National Wildlife Refuge using delta-splays. Five crevasses in the bank at Main Pass are required for Reach B and have been constructed. A Supplemental Mitigation Plan is being developed to readdress impacts on Reach A and also determine mitigation requirements for Reach C and the West Bank River Levee. Approval of this Supplemental Mitigation Report is expected in 1996.

At the request of Plaquemines Parish, we prepared a Post Authorization Change report to incorporate the area from St. Jude to City Price (an additional 3.3 miles of levee protection) into the project. This area is adjacent to the upstream end of Reach A. Costs for this work are 100 percent non-Federal. Plaquemines Parish wants to include this reach so that flood insurance can be obtained by residents and industry in the area. The lateral levees at City Price, which is currently the upstream terminus of Reach A, will not be constructed. The savings achieved by not constructing the lateral levee and its related relocations will be creditable to the local sponsor. The Post Authorization Change report was submitted to Lower Mississippi Valley Division on 5 February 1992, and was approved 6 March 1992. Proposed supplemental assurances were approved on 10 July 1992. Plaquemines Parish Government executed the supplemental assurances on 21 December 1992 and they were accepted on 18 February 1993.


Marsh Creation in Pass A Loutre area
Mitigation (Reaches A, C, WBRL)
scheduled FY-96
Delta Splays in Main Pass area
Mitigation (Reach B) Completed
FY-95
N
ARKANSAS
MISSISSIPPI
TEXAS
LOUISIANA
LAKE CHARLES
BATON ROUGE
NEW ORLEANS
GULF OF MEXICO
PROJECT LOCATION
VICINITY MAP
SCALE
MILES
KILOMETERS
AMERICAN BAY
WEST BANK RIVER LEVEE
REACH C
STA.550
STA.240
STA.834
STA.378
STA.122
Bohemia
Pointe a la Hache
Davant
MISSISSIPPI RIVER
39
Phoenix
STA.0
Port Sulphur
Homeplace
ST. Jude
City Price
STA.249
STA.314
23
REACH A
LEGEND
AREA FLOODED BY STANDARD PROJECT HURRICANE
FLOODGATE
LOCK (COMPLETED, NON-PROJECT)
LEVEE (PROJECT)
LEVEE (NON-PROJECT)
FLOODWALL
LOCAL PUMPING STATION
SHORELINE
STATUS OF WORK
WORK COMPLETED 30 SEPTEMBER 1995.
WORK UNDERWAY WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996.
WORK PROPOSED WITH FUNDS REQUESTED THE FISCAL YEAR 1997.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997.
SCALES
MILES
0
5
KILOMETERS
0
5
NEW ORLEANS TO VENICE, LA.
HURRICANE PROTECTION
US ARMY ENGINEER DISTRICT, NEW ORLEANS
US ARMY ENGINEER DIVISION, LOWER MISSISSIPPI VALLEY
REVISED (JANUARY 1998

SHEET 1 OF 2


LEGEND
AREA FLOODED BY STANDARD PROJECT HURRICANE
FLOODGATE
LOCK (COMPLETED, NON-PROJECT)
LEVEE (PROJECT)
LEVEE (NON-PROJECT)
FLOODWALL
LOCAL PUMPING STATION
SHORELINE
WEST BANK RIVER LEVEE
BRETON SOUND
LONG BAY
GRAND BAY
STA. 1587
STA. 1680
STA. 1313
Fort Jackson
Boothville
Venice
STA. 370
STA. 624
QUARANTINE BAY
STA. 1025
Triumph
RIVER
STA. 635+0
STA. 281
STA. 426
STA. 1793
S STA. 482
GRAND PASS
EMPIRE LOCK
MISSISSIPPI
Buras
Bayou Grand Liard Pumping Station
STA. 418
STA. 373
REACH B-2
Empire
Sunrise Pumping Station
Empire Floodgate
STA. 177
REACH B-1
STA. 881+0
Tropical Bend
MATCH SHEET 1
ADAMS BAY
SCALES
MILES
0
5
KILOMETERS
0
5
STATUS OF WORK
WORK COMPLETED. 30 SEPTEMBER 1995.
WORK UNDERWAY WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996.
WORK PROPOSED WITH FUNDS REQUESTED THE FISCAL YEAR 1997.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997.
NEW ORLEANS TO VENICE, LA.
HURRICANE PROTECTION
US ARMY ENGINEER DISTRICT, NEW ORLEANS
US ARMY ENGINEER DIVISION, LOWER MISSISSIPPI VALLEY
REVISED : JANUARY 1996
ARKANSAS
MISSISSIPPI
TEXAS
LOUISIANA
GULF OF MEXICO
PROJECT LOCATION
VICINITY MAP

SHEET 2 OF 2

APPROPRIATION TITLE: Construction, General - Local Protection (Urban Flood Control)

PROJECT: Southeast Louisiana, Louisiana (Continuing)

LOCATION: The project is located in the urban areas of Jefferson, Orleans and St. Tammany parishes in southeast Louisiana. These areas make up the three major urban centers of the New Orleans Metropolitan Statistical Area.

DESCRIPTION: The proposed plan, consistent with the current $25,000,000 Federal authorized appropriation ceiling, includes canal improvements, removal of canal obstructions, and increased pumping capacities in Jefferson and Orleans Parishes and channel improvement on Mile Branch near Covington, Louisiana, in St. Tammany Parish. All work included in the $25,000,000 Federal authorized appropriations ceiling is programmed.

AUTHORIZATION: Energy and Water Development Appropriations Act, Fiscal Year 1996 (Section 108).

REMAINING BENEFIT - REMAINING COST RATIO: 2.5 to 1 at 8 percent.

TOTAL BENEFIT - COST RATIO: 2.5 to 1 at 8 percent.

INITIAL BENEFIT - COST RATIO: 2.5 to 1 at 8 percent (FY 1996).

BASIS OF BENEFIT - COST RATIO: Benefits are based on the Jefferson and Orleans Parishes, Louisiana Urban Flood Control and Water Quality Management reconnaissance study dated July 1992 at October 1991 price levels and the Tangipahoa, Tchefuncte, and Tickfaw Rivers reconnaissance study dated June 1991 at October 1990 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED COST
Estimated Federal Cost		$ 25,000,000	
Estimated Non-Federal Cost		8,333,000	
Cash Contribution	0		
Other	8,333,000		
Total Estimated Project Cost		$ 33,333,000	
Allocations to 30 September 1995		0	
Conference Allowance for FY 1996		2,000,000	
Allocation for FY 1996		2,000,000	
Allocations through FY 1996		2,000,000	8
Allocation Requested for FY 1997		10,000,000	48
Programmed Balance to Complete after FY 1997		13,000,000	
Unprogrammed Balance to Complete after FY 1997		0	

STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	0	Being Determined

PHYSICAL DATA

Channel Improvement: 7 miles
Pumping Stations Modifications: 2

JUSTIFICATION: Jefferson, Orleans, and St. Tammany parishes are located in southeast Louisiana. They make up the three major urban centers of the New Orleans Metropolitan Statistical Area. Jefferson Parish has a population of 450,000 (1990). Orleans Parish and the City of New Orleans have coincident boundaries and a population of 500,000 (1990). Jefferson and Orleans Parishes are located in the deltaic plain of the Mississippi River, within the coastal zone of Louisiana. St. Tammany Parish, on the north shore of Lake Pontchartrain, is developing rapidly with a population of 143,000 in 1990, a 30-percent increase since 1980.

Jefferson and Orleans Parishes are bisected by the Mississippi River, creating an east and a west bank area. Generally, the areas near the Mississippi River are above sea level. However, ground elevations decrease with distance from the river and some areas within the levee systems have elevations of as much as nine feet below sea level. Most of the developed areas are protected by levee systems from river and hurricane flooding and drained by pumps which discharge primarily into estuarine water bodies such as Lake Pontchartrain, Barataria Bay, and Lake Borgne.

The leveed areas in Jefferson Parish are divided into three hydrologically distinct basins (East Bank, West Bank - East of Harvey Canal, and West Bank - West of Harvey Canal) that are further subdivided into many sub-basins by natural and man-made barriers. These basins are webbed with canals that terminate at pumping stations. The east bank includes the cities of Kenner and Harahan and unincorporated Metairie. The west bank includes the cities of Westwego and Gretna and the unincorporated communities of Avondale, Bridge City, Marrero, Harvey, Terrytown, and Lafitte.

Orleans Parish is divided into many sub-basins by natural and man-made barriers. These basins are also webbed with canals that terminate at pumping stations. The City of New Orleans makes up an east bank and a west bank basin. The west bank community is commonly referred to as Algiers.

St. Tammany Parish includes the cities of Covington, Slidell, Mandeville, Madisonville, Lacombe, Abita Springs, and other smaller communities. The parish is characterized by gently rolling hills which become flatter in the south near Lake Pontchartrain. A narrow bank of deltaic plain extends along the shore of the lake. Elevations range from 200 feet in the north to near sea level at the lake. The parish is drained by numerous watersheds of varying size. The Pearl River drains an area along the east side of the parish, and backwater flooding from the river occurs in the southeast near Slidell. The remainder of the parish is drained by the Tchefuncte River, Bayou Lacombe, Bayou Bonfouca, and numerous smaller watersheds. Rapid growth, primarily in the southern portion of the parish, has increased rainfall runoff and flooding. The area along the north shore of the lake, including portions of Slidell, Mandeville, Madisonville, and Lacombe, are also subject to flooding from hurricane surges.

Approximately 30 percent of the state's population and 40 percent of the state's economy reside in the three affected parishes which have suffered great flooding losses. Local interests have made substantial improvement to the existing flood control system but are unable to address the major flooding events that continue to plague the Southeast Louisiana area. Flood damages since 1979 are in the billions of dollars. In the extreme rainfall event that occurred in May 1995, more than 24 inches of rain fell into the basin in less than 24 hours. Damages from this one event were approximately $1.5 billion. The Federal expenditures for this damage recovery are expected to exceed $500 million. The average annual benefits, all flood control are $7,312,000.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate:	
Canal #3 I-10 to Elmwood	$ 3,333,000
New Westwego Pumping Station	133,000
Broad St Pumping Station	5,417,000
Planning, Engineering, and Design	300,000
Supervision and Administration	817,000
Total	$10,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

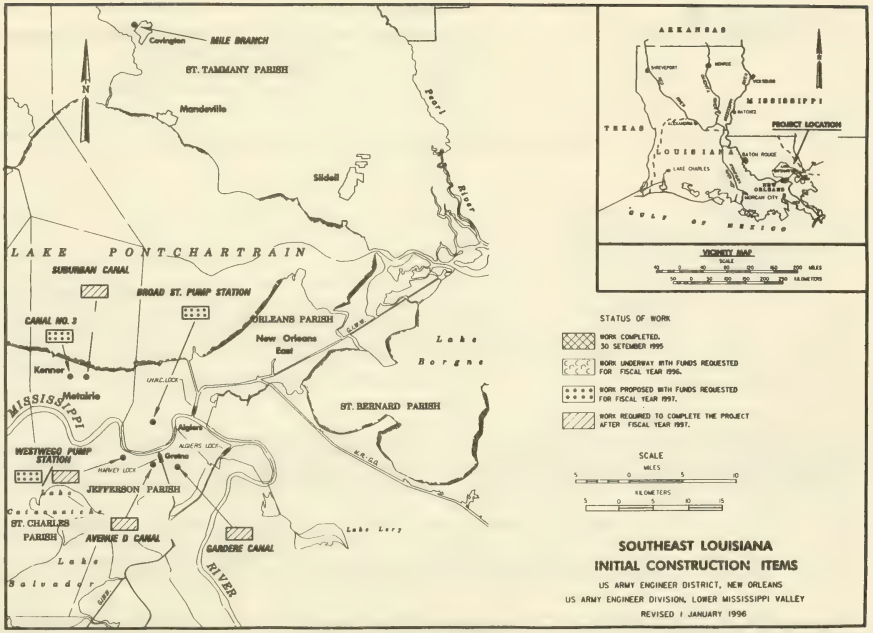
Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Provide lands, easements, and rights-of-way, including borrow and dredged material disposal areas.	$ 4,904,000	-
Accomplish alterations to roads, pipelines, cables, wharves, oil wells, and any other facilities necessary for construction of the project.	$ 1,300,000	-
Bear 25 percent of the total project cost, to include the items listed above and a cash contribution or equivalent work specifically undertaken as an integral part of the project subsequent to the reports cited in the authorizing language.	$ 2,129,000	-
Bear all costs of operation, maintenance, repair, rehabilitation and replacements of all features of the project	-	$200,000
Total Non-Federal Cost	$ 8,333,000	$200,000

STATUS OF LOCAL COOPERATION: Project Cooperation Agreements between the Federal Government and each of the three prospective Local Sponsors are scheduled for execution in late FY 1996. The PCA's will cover all the Federal and non-Federal cost sharing responsibilities for the project. Local interests have accomplished significant work compatible and integral to the project. Actual credit for equivalent work in lieu of cash contributions will be given subject to technical evaluations and audit. All work included in the $25,000,000 Federal authorized appropriations ceiling is structural flood control.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate is $25,000,000 and is the initial estimate presented to Congress following authorization.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: All environmental documentation associated with the work planned within the $25,000,000 Federal appropriation ceiling will be completed prior to initiation of construction.

OTHER INFORMATION: Funds to initiate engineering, design and construction were appropriated in Fiscal Year 1996. The total estimated cost for the work described in the reports cited in the authorizing language is $372,000,000. There is authorized to be appropriated $25,000,000 for the initiation and partial accomplishment of projects described in these reports.


Covington
MILE BRANCH
ST. TAMMANY PARISH
N
Mandeville
Pearl River
Slidell
LAKE PONTCHARTRAIN
SUBURBAN CANAL
BROAD ST. PUMP STATION
CANAL NO. 3
ORLEANS PARISH
New Orleans East
Lake Borgne
Kenner
Metairie
MISSISSIPPI
UNRC LOCK
ST. BERNARD PARISH
Algiers
ALGIERS LOCK
WESTWEGO PUMP STATION
HARVEY LOCK
Gretna
JEFFERSON PARISH
Lake Cataouatche
ST. CHARLES PARISH
AVENUE D CANAL
GARDERE CANAL
Lake Lery
Lake Salvador
GIWW
RIVER
ARKANSAS
SHREVEPORT
MONROE
MISSISSIPPI
NATCHEZ
TEXAS
LOUISIANA
BATON ROUGE
LAKE CHARLES
NEW ORLEANS
MORGAN CITY
GULF OF MEXICO
PROJECT LOCATION
VICINITY MAP
SCALE
MILES
KILOMETERS
STATUS OF WORK
WORK COMPLETED. 30 SETEMBER 1995
WORK UNDERWAY WITH FUNDS REQUESTED FOR FISCAL YEAR 1996.
WORK PROPOSED WITH FUNDS REQUESTED FOR FISCAL YEAR 1997.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997.
SCALE
MILES
KILOMETERS
SOUTHEAST LOUISIANA
INITIAL CONSTRUCTION ITEMS
US ARMY ENGINEER DISTRICT, NEW ORLEANS
US ARMY ENGINEER DIVISION, LOWER MISSISSIPPI VALLEY
REVISED 1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Westwego to Harvey Canal, Louisiana (Hurricane Protection) (Continuing)

LOCATION: Urban area within Jefferson Parish between Westwego and the Harvey Canal on the west bank of the Mississippi River in the vicinity of New Orleans, Louisiana.

DESCRIPTION: The recommended plan consists of new and enlarged levees along the permitted alignment from the Westwego area to the V-levee, along the existing V-levee alignment to the vicinity of Estelle Pumping Station, and along the existing Harvey Canal-Bayou Barataria Levee to the Cousins Pumping Station. From that point, a floodwall is proposed to parallel the Harvey Canal and tie back into the Harvey Lock. Floodwalls will also be used along the levee alignment mentioned above when tieing into pumping stations and where land constraints dictate. The entire project is programmed.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 4.7 to 1 at 8-7/8 percent.

TOTAL BENEFIT-COST RATIO: 1.6 to 1 at 8-7/8 percent.

INITIAL BENEFIT-COST RATIO: 2.9 to 1 at 8 5/8 percent (FY 1990).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available economic analysis provided in Design Memorandum No. 1, General Design Supplement No.2 entitled "Westwego to Harvey Canal, LA," Hurricane Protection Project dated February 1990 deflated to FY 1989 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST
Estimated Federal Cost		$61,800,000	
Estimated Non-Federal Cost		33,200,000	
Cash Contribution	$ 8,708,000		
Other	24,492,000		
Total Estimated Project Cost		$95,000,000	
Allocations to 30 September 1995		20,117,000	
Conference Allowance for FY 1996		1,000,000	
Allocation for FY 1996		1,917,000 [1]	
Allocations through FY 1996		22,034,000	36
Allocation Requested for FY 1997		4,206,000	42
Programmed Balance to Complete after FY 1997		35,560,000	
Unprogrammed Balance to Complete after FY 1997		0	

STATUS (1 Jan 1996)	PHYSICAL PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	20	Being Determined

PHYSICAL DATA

Levees: Average Elevation: 11 feet
Length: 16 miles

Floodwalls: Average Elevation: 13 feet
Length: 5 miles

Access Gates: 26

JUSTIFICATION: The project area is generally bounded by the Harvey Canal to the east, Lakes Cataouatche and Salvador to the west, the Mississippi River to the north, and Barataria Bay to the south. Tidal waters can be carried into the project area through Lakes Cataouatche and Salvador, which connect to the Gulf of Mexico through Barataria Bay, and into the Bayou Segnette and the Harvey Canal. Fresh water comes into the area from the Mississippi River via the Harvey and Algiers Locks, direct rainfall, and pumpage from leveed areas. Several hurricanes and tropical storms have passed through or near the project area, including the following major storms: the 1915 hurricane, the 1947 hurricane, and Hurricanes Flossy (1956), Hilda (1964), Betsy (1965), Carmen (1974), Babe (1977), Bob (1979), Danny (1985), and Juan (1985). Hurricane Flossy brought torrential rains and tidal flooding to the project area, with nearby areas recording 16.7 inches of rain in a 24-hour period. Hurricane Hilda raised water levels at Barataria and Lafitte to 3.6 and 4.04 feet NGVD, respectively. Hurricanes Betsy and Carmen also caused flooding to some parts of the project area. Hurricane Juan, generally characteristic of a storm event of approximately 25 years, broke high water records throughout the area, with stages in the Harvey Canal estimated to be the equivalent of a 60-year event. On the west bank, three local levees were breached and several subdivisions were flooded by tidal inundation and the long duration of the high stages. The total precipitation for Juan ranged from 8 to 12 inches over the project area. This storm clearly illustrated that the present local levee system is unable to provide protection against a tidal surge. The quick action and massive flood fighting efforts by the West Jefferson Levee District, the Parish of Jefferson, the National Guard, and thousands of volunteers prevented more extensive flooding of potentially catastrophic proportions.

[1] Reflects $83,000 reduction assigned as savings and slippage and $1,000,000 reprogrammed to the project.

The project will provide Standard Project Hurricane protection to approximately 42,900 acres of urban land. Total value of all lands is approximately $930,225,000, and of all improvements is $1,834,858,000 at 1995 price levels. The 1990 population was 69,000. Damages from a 500-year storm which could be prevented with the project in place are estimated at $1,152,413,000 at 1995 price levels. The average annual benefits, all flood control, are $26,818,000.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue:	
New Wego PS to Orleans Village, 1st Lift	$1,975,000
Complete:	
Old Wego to New Wego PS FW(I)	401,000
Estelle PS to LP&L PS Levee, 1st Lift	1,165,000
Surveys and Layouts	79,000
Federal Lands and Damages	10,000
Planning, Engineering and Design	241,000
Supervision and Administration	335,000
Total	$4,206,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986 (P.L. 99-662), the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, and rights-of-way, and borrow and excavated material disposal areas.	$ 6,584,000	
Accomplish all alterations and relocations to utilities and facilities (other than railroad bridges) necessary for construction of the project.	8,108,000	
Pay 35 percent of the first cost allocated to hurricane protection. Funds provided by non-Federal interests for interim hurricane protection may be considered beneficial expenditures and may be credited as a part of the non-Federal contribution of the project pursuant to the Water Resources Development Act of 1986.	18,508,000	
Bear all costs of operation, maintenance, and replacement of all features of hurricane protection facilities.		$76,000
Total Non-Federal Costs	$33,200,000	$76,000

Prior to project authorization, local interests initiated levee construction to provide protection against inundation from storm tides and expended approximately $6.7 million. In addition, the Report of the Chief of Engineers recommended credit of approximately $21.4 million for work integral to the project performed subsequent to project authorization. The Assistant Secretary of the Army (Civil Works) approved these credits, subject to audit and the compatibility of the levee work with the final project design.

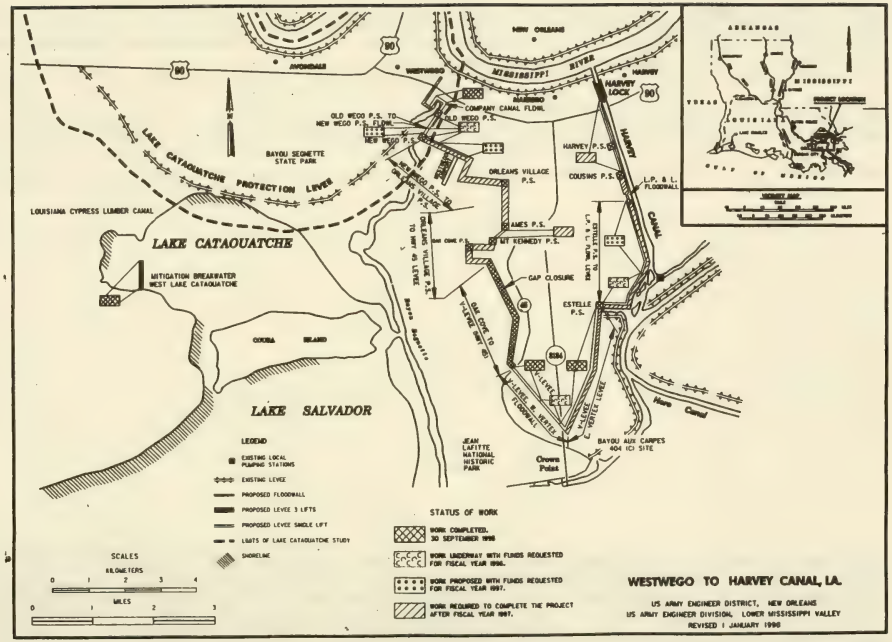
STATUS OF LOCAL COOPERATION: A Project Cooperation Agreement between the West Jefferson Levee District, local sponsor for the project, and the Federal Government was executed on 18 December 1990. The Project Cooperation Agreement covers all the Federal and non-Federal cost sharing responsibilities for the project.

Local interests have accomplished engineering and design work and constructed numerous reaches of levee. Specifically, about $21,400,000 has been recommended in tentative credit to local interests for work accomplished or to be accomplished, subsequent to project authorization. Actual credit for equivalent work in lieu of cash contribution is given upon verification of engineering and design work and evaluation of the construction.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $61,800,000 is the same as the latest estimate ($61,800,000) presented to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with Environmental Protection Agency on 23 October 1987. The Record of Decision was signed 28 March 1989. Environmental Assessments to address refinements in project design were prepared on 23 February 1990, June 1991, March 1992 and August 1993. A Finding of No Significant Impact was signed by the District Commander in each assessment.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1988 and funds to initiate construction were appropriated in FY 1990. Construction was initiated in March 1991. A post authorization change report is being processed to expand the scope of this project to include the Lake Cataouatche area. The proposed change will require authorization by Congress and will result in a "net" increase of more than $10 million to the Westwego to Harvey total project cost estimate.


WESTWEGO TO HARVEY CANAL, LA.
US ARMY ENGINEER DISTRICT, NEW ORLEANS
US ARMY ENGINEER DIVISION, LOWER MISSISSIPPI VALLEY
REVISED 1 JANUARY 1990
LAKE CATAOUATCHE
LAKE SALVADOR
LAKE CATAOUATCHE PROTECTION LEVEE
LOUISIANA CYPRESS LUMBER CANAL
MITIGATION BREAKWATER WEST LAKE CATAOUATCHE
COUBA ISLAND
BAYOU SEGNETTE STATE PARK
JEFFERSON
NEW ORLEANS
MISSISSIPPI RIVER
WESTWEGO
MARRERO
HARVEY
HARVEY LOCK
HARVEY CANAL
COMPANY CANAL FLOWL
OLD WEGO P.S. TO NEW WEGO P.S. FLOWL
OLD WEGO P.S.
NEW WEGO P.S.
ORLEANS VILLAGE P.S.
HARVEY P.S.
COUSINS P.S.
L.P. & L. FLOODWALL
AMES P.S.
MT KENNEDY P.S.
GAP CLOSURE
ESTELLE P.S.
OAK GROVE P.S.
OAK GROVE TO L.P. & L. FLOWL LEVEE
L.P. & L. FLOWL LEVEE
L.P. & L. FLOWL LEVEE TO
LEVEE
L.P. & L. FLOWL LEVEE
E. LEVEE
E. LEVEE
Bayou Segnette
Bayou Barataria
Harvey Canal
JEAN LAFITTE NATIONAL HISTORIC PARK
Crown Point
BAYOU AUX CARPES 404 (C) SITE
LEGEND
EXISTING LOCAL PUMPING STATIONS
EXISTING LEVEE
PROPOSED FLOODWALL
PROPOSED LEVEE 3 LIFTS
PROPOSED LEVEE SINGLE LIFT
LIMITS OF LAKE CATAOUATCHE STUDY
SHORELINE
SCALES
KILOMETERS
0 1 2 3 4
MILES
0 1 2 3
STATUS OF WORK
WORK COMPLETED. 30 SEPTEMBER 1988
WORK UNDERWAY WITH FUNDS REQUESTED FOR FISCAL YEAR 1996.
WORK PROPOSED WITH FUNDS REQUESTED FOR FISCAL YEAR 1997.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997.
ARKANSAS
MISSISSIPPI
TEXAS
LOUISIANA
GULF OF MEXICO
VICINITY MAP
MILES
KILOMETERS

APPROPRIATION TITLE: Construction, General - Local Protection - (Flood Control)

PROJECT: Cape Girardeau - Jackson, Missouri - (Continuing)

LOCATION: The project is located in Cape Girardeau County, Missouri, along the right bank of the Mississippi River between river miles 50 and 55 above the Ohio River.

DESCRIPTION: The project includes a 157 acre dry detention reservoir; approximately 1 mile of channel improvements on Cape La Croix Creek and 2 miles of channel improvements on Walker Branch, 8 bridge replacements; recreational trails and facilities and a sewer line replacing authorized sewage lagoon levee. Unprogrammed work consists of the non-structural flood control features which are not economically justified.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 1.02 to 1 at 8-5/8 percent.

TOTAL BENEFIT-COST RATIO: 1.6 to 1 at 8-5/8 percent.

INITIAL BENEFIT-COST RATIO: 1.6 to 1 at 8-5/8 percent (FY 1990).

BASIS OF BENEFIT-COST RATIO: The document which provides basis for benefits is the Cape Girardeau-Jackson Metropolitan Area, Missouri - Post Authorization Change - Supportive Economic Analysis - March 1994 at 1993 price level.

SUMMARIZED FINANCIAL DATA

				STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost			$33,300,000			
Programmed Construction		31,338,000				
Unprogrammed Construction		1,962,000		Entire Project	73	Being Determined
Estimated Non-Federal Cost			12,500,000			
Programmed Construction		11,824,000				
Cash Contributions	2,082,000					
Other Costs	9,742,000					
Unprogrammed Construction		676,000				
Cash Contributions	0					
Other Costs	676,000					

PHYSICAL DATA

Channels: 3 miles
Dams: 1 Dry Detention Reservoir
Bridges: 8
Levees: Sewer line replaces authorized sewage lagoon levee.
Recreation: Trails, camping area, ballfields, sanitary facilities, miscellaneous.

		ACCUM PCT OF EST FED COST
Total Estimated Programmed Construction Cost	$43,162,000	
Total Estimated Unprogrammed Construction Cost	2,638,000	
Total Estimated Project Cost	$45,800,000	
Allocations to 30 September 1995	23,712,000	
Conference Allowance for FY 1996	200,000	
Allocation for FY 1996	770,000[1]	
Allocations through FY 1996	24,482,000	74
Allocation Requested for FY 1997	1,000,000	77
Programmed Balance to Complete after FY 1997	5,856,000	
Unprogrammed Balance to Complete after FY 1997	1,962,000	

JUSTIFICATION: The Cape Girardeau - Jackson project area, population 42,000 contains approximately 210 square miles of rural, urban, and developing lands, including 22 square miles previously under study in the Cape La Croix Creek watershed and 5 square miles previously under study in the Little River Diversion Channel study. Gently rolling hill land divided into small watersheds characterizes the study area. It also includes significant flood plain area bordering the Mississippi River and the Little River Diversion Channel. The principal flooding problem within this watershed is flash flooding along Cape La Croix Creek and its tributaries. The type of property subject to flooding encompasses a full range of industrial, commercial and residential usages, as well as some agricultural usage.

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[1] Reflects $17,000 reduction assigned as savings and slippage and $587,000 reprogrammed to the project.

In May 1986 the flood of record occurred when approximately 10 to 13 inches of rain fell over the basin causing an estimated $50,000,000 flood damage loss. Several floods have occurred previously, most notably in May 1973 and March 1977. These floods were caused by recorded rainfall of approximately 9 and 7 inches, respectively. Average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$3,714,000
Recreation	236,000
Total	$3,950,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate: Walker Branch Ditching #3	$851,000
Complete: Lands and Damages	16,000
Planning, Engineering and Design	48,000
Supervision and Administration	85,000
Total	$1,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas.	$ 5,327,000	
Modify or relocate utilities, roads, bridges (except railroad bridges) and other facilities where necessary for the construction of the project.	4,342,000	
Pay one half of the separable costs allocated to recreation (except recreational navigation) bear all costs of operation, maintenance, repair, rehabilitation and replacement of recreation facilities.	749,000	$ 17,000
Pay 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	2,082,000	111,000
Total Non-Federal Costs	$12,500,000	$128,000

STATUS OF LOCAL COOPERATION: The City of Cape Girardeau, Missouri, local sponsor of the project, is strongly supportive of the project. The Project Cooperation Agreement was executed on 31 May 1990.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $33,300,000 is an increase of $400,000 from the latest estimate ($32,900,000) presented to Congress (FY 1996). This change includes the following item:

Item	Amount
Price Escalation on Construction Features	$ 400,000

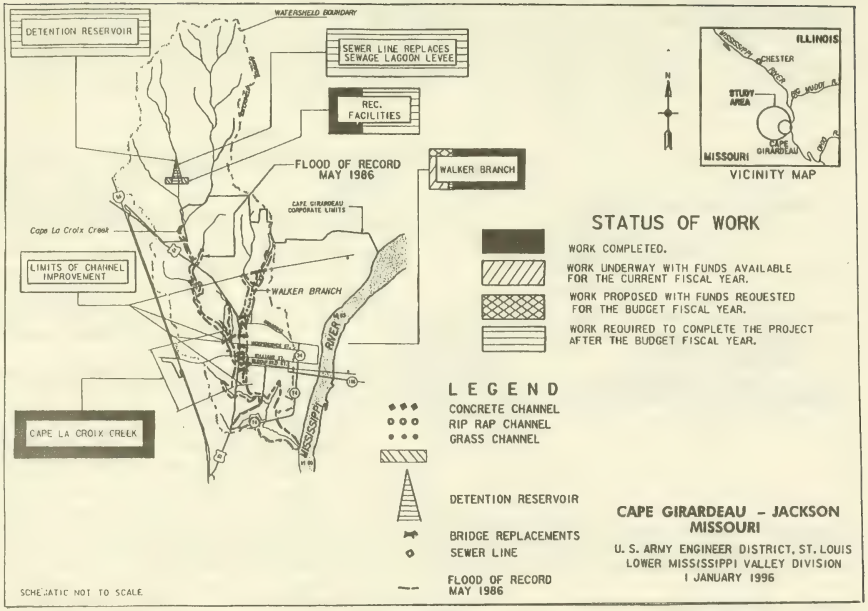
STATUS OF ENVIRONMENTAL IMPACT STATEMENT AND COMPLIANCE WITH CLEAN WATER ACT: The Survey Report dated December 1983 contained an Environmental Assessment and Finding of No Significant Impact signed by the St. Louis District Commander. During preparation of the General Design Memorandum, the recommended plan was again examined and the conclusion that the project will have no significant adverse environmental impact was upheld. The survey report also contained an evaluation under Section 404 (b)(1) of the Clean Water Act. Full compliance with the requirements of Sections 401 and 404 of the Clean Water Act was accomplished on 4 May 1990.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1987 and funds to initiate construction were appropriated in FY 1990. The scheduled completion date for programmed work is being determined, which is the same information last presented to Congress (FY 1996).

The total project cost estimate cited in this document exceeds the limits of Section 902 of the Water Resources Development Act of 1986 and will require a reauthorization action by Congress. Based on present schedules and expected funding requirements, obligation and expenditure of funds which would be in excess of the Section 902 limit would occur on the dry detention reservoir contract which is the final major contract on the project. The dry detention reservoir contract is presently scheduled for award in March 1998.

The Missouri Eastern District Court of Appeals has ruled that the City of Cape Girardeau, local sponsor of the project, does have the legal right to condemn property needed for the dry detention reservoir construction which is outside the City limits. The City is proceeding with condemnation actions on remaining tracts needed for the dry detention reservoir.

The project requires no mitigation.


WATERSHED BOUNDARY
DETENTION RESERVOIR
SEWER LINE REPLACES SEWAGE LAGOON LEVEE
REC. FACILITIES
FLOOD OF RECORD MAY 1986
WALKER BRANCH
CAPE GIRARDEAU CORPORATE LIMITS
Cape La Croix Creek
LIMITS OF CHANNEL IMPROVEMENT
WALKER BRANCH
MISSISSIPPI RIVER
CAPE LA CROIX CREEK
ILLINOIS
CHESTER
MISSISSIPPI RIVER
STUDY AREA
BIG MUDDY R.
CAPE GIRARDEAU
MISSOURI
VICINITY MAP
STATUS OF WORK
WORK COMPLETED.
WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR.
WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR.
LEGEND
CONCRETE CHANNEL
RIP RAP CHANNEL
GRASS CHANNEL
DETENTION RESERVOIR
BRIDGE REPLACEMENTS
SEWER LINE
FLOOD OF RECORD MAY 1986
CAPE GIRARDEAU - JACKSON MISSOURI
U. S. ARMY ENGINEER DISTRICT, ST. LOUIS
LOWER MISSISSIPPI VALLEY DIVISION
1 JANUARY 1996
SCHEMATIC NOT TO SCALE

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Meramec River Basin, Valley Park Levee, Missouri (Continuing)

LOCATION: The project is located in St. Louis County, Missouri, adjacent to the left bank of the Meramec River between miles 20.7 and 22.1 above the confluence with the Mississippi River.

DESCRIPTION: The project provides for construction of 3.2 miles of levee with 3 feet of freeboard above the 100-year flood profile. Six gravity drains and three closure structures will be constructed. Interior drainage facilities consist of one lift station and four ponding areas. Thirty-three relief wells will be required for under seepage control. Recreational features consist of 2 softball fields, 1 football/soccer field, 1 multi-use court, 15 picnic tables, 2 playgrounds, 1 comfort station, parking facilities, and 2.3 miles of trails. All work is programmed.

AUTHORIZATION: Section 2(h), Public Law 97-128.

REMAINING BENEFIT-REMAINING COST RATIO: 1.6 to 1 at 8-7/8 percent.

TOTAL BENEFIT-COST RATIO: 1.17 to 1 at 8 7/8 percent.

INITIAL BENEFIT-COST RATIO: 1.08 to 1 at 8 7/8 percent (FY 1991).

BASIS OF BENEFIT-COST RATIO: Benefits are based on St. Louis District response to Memorandum, Office of the Assistant Secretary of the Army (Civil Works), 25 June 1992, subject: Lower Meramec River Flood Damage Reduction Project, Missouri, and General Design Memorandum dated March 1987 at October 1991 price level.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST
Estimated Federal Cost		16,267,000	
Estimated Non-Federal Cost		5,622,000	
Cash Contribution	1,235,000		
Other Costs	4,387,000		
Total Estimated Project Cost		21,889,000	
Allocations to 30 September 1995		5,351,000	
Conference Allowance for FY 1996		0	
Allocation for FY 1996		1,950,000[1]	
Allocations through FY 1996		7,301,000	45
Allocation Requested for FY 1997		1,600,000	55
Programmed Balance to Complete after FY 1997		7,366,000	
Unprogrammed Balance to Complete after FY 1997		0	

STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	32	Being Determined

PHYSICAL DATA	
Levee:	3.2 miles
Gravity Drains:	6
Closure Structures:	3
Lift Station:	1
Ponding Areas:	4
Relief Wells:	33
Recreational Features:	Various

[1] Reflects $1,950,000 reprogrammed to the project.

JUSTIFICATION: The city of Valley Park, Missouri, has experienced severe flooding from the Meramec River nine times since the early 1900's and sustains average annual damages estimated at $1,496,000 (excluding the effects of 2 flood events during 1993 and 1 event in 1994). The total value of structures susceptible to flood damages is estimated to be $33,900,000. The flood of record occurred in December 1982 and caused an estimated $21,624,000 in damages to 108 residential structures and 142 business establishments. This flood had a recurrence interval of approximately once in 70 years. The recommended project will provide 100-year protection to 499 residences and 168 non-residential structures. As recorded by the 1980 census, the population of Valley Park was 3,232. In order to finance the non-Federal portion of project costs, city officials have instituted a number of innovative techniques including solicitation for the donation of right-of-way required for construction and establishment of a Tax Increment Financing (TIF) District. City residents strongly support the project as demonstrated by attendance at rallies, signs posted in yards and at businesses, and participation in letter-writing campaigns. There are no significant adverse environmental impacts associated with the project. Average annual benefits are as follows:

Annual Benefits	Amount
Flood Damage Reduction	$1,382,000
Recreation	166,000
Total	$1,548,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate: Levee, Item III	$1,386,000
Planning, Engineering, and Design	46,000
Supervision and Administration	168,000
Total	$1,600,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts contained in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Costs
Provide lands, easements, and rights-of-way.	$ 2,300,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary for the construction of the project.	2,120,000	

Requirements of Local Cooperation (cont'd)	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Costs
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of recreation facilities.	120,000	
Pay 5 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of the project.	1,082,000	$ 32,000
Total Non-Federal Costs	$ 5,622,000	$ 32,000

STATUS OF LOCAL COOPERATION: By resolution number 2-18-87-1, the Board of Aldermen for the city of Valley Park, Missouri, authorized the mayor to issue a Letter of Intent to sponsor the project. The letter, dated 18 February 1987, acknowledged that city officials were aware of cost sharing requirements and of the items of local cooperation and favored construction of the project. A Project Cooperation Agreement was executed 12 August 1992.

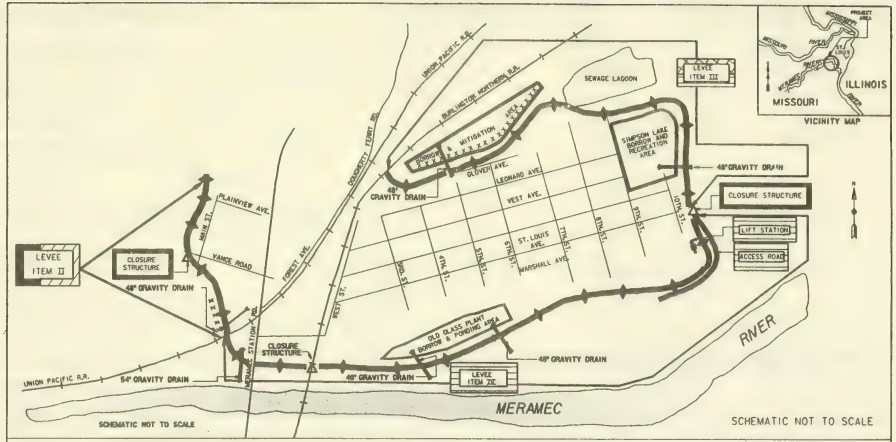
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $16,267,000 is an increase of $2,367,000 from the latest estimate ($13,900,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 84,000
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	2,283,000
Total	$2,367,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: During preparation of the Plan Formulation Report and General Design Memorandum, Main Report, and Environmental Assessment, it was determined that implementation of the recommended plan would not have significant adverse effects on the quality of the human environment. A Finding of No Significant Impact was signed by the District Commander on 9 March 1987.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1983; and funds to initiate construction were appropriated in FY 1991. The scheduled completion date for programmed work is being determined, which is the same information last presented to Congress (FY 1996).

The project requires no mitigation.



STATUS OF WORK

- WORK COMPLETED.
- WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR.
- WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR.
- WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR.

LEGEND

- PROPOSED LEVEE
- PROPOSED LIFT STATION
- PROPOSED CLOSURE STRUCTURE
- PROPOSED GRAVITY DRAIN
- X X X X X PROPOSED CHANNEL WORK UTILITY RELOCATIONS (NOT SHOWN)

ENTIRE AREA SHOWN FLOODED BY FLOOD OF RECORD IN DECEMBER, 1982.

MERAMEC RIVER BASIN VALLEY PARK LEVEE MISSOURI

U. S. ARMY ENGINEER DISTRICT, ST. LOUIS
LOWER MISSISSIPPI VALLEY DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Ste. Genevieve, Missouri (Continuing)

LOCATION: The project is located in Ste. Genevieve County, Missouri, adjacent to the west bank of the Mississippi River between miles 121 and 125 above the confluence of the Ohio River.

DESCRIPTION: The project includes four parts. The programmed portion of the project, Part 1, consists of a 3.5 mile long levee that will provide Urban Design Flood protection from Mississippi River flooding, a gravity drain pump facility with a 650 cubic feet per second electric-powered pump, a 505 acre ponding area, interior drainage ditching and grading, two closure structures, relocation of U.S. Highway 61 over the levee, 47 relief wells, tree screens, an environmental mitigation area, and other features. Unprogrammed work consists of three parts. Part 2 is channel widening and one small levee along North Gabouri Creek; Part 3 is channel widening and one small levee along South Gabouri Creek; and Part 4 is recreation facilities such as picnic areas and trails on flood control lands along the tributary improvements and the levee.

AUTHORIZATION: The Water Resources Development Act of 1986 (Public Law 99-662).

REMAINING BENEFIT-REMAINING COST RATIO: 1.0 to 1 at 8-1/4 percent.

TOTAL BENEFIT-COST RATIO: 1.0 to 1 at 8-1/4 percent.

INITIAL BENEFIT-COST RATIO: 1.0 to 1 at 8-1/4 percent (FY 1995).

BASIS OF BENEFIT-COST RATIO: Benefits are based cn the authorizing language, which states "...Congress finds that, in view of the historic preservation benefits resulting from the project, the overall benefits of the project exceed the costs of the project."

SUMMARIZED FINANCIAL DATA				ACCUM. PCT. OF EST. FED COST
Estimated Federal Cost			39,115,000	
Programmed Construction		35,318,000		
Unprogrammed Construction		3,797,000		
Estimated Non-Federal Cost			14,428,000	
Programmed Construction		11,773,000		
Cash Contributions	8,214,000			
Other Costs	3,559,000			
Estimated Non-Federal Cost				
Unprogrammed Construction		2,655,000		
Cash Contributions	301,000 [2]			
Other Costs	2,354,000			
Total Estimated Programmed Construction Cost			47,091,000	
Total Estimated Unprogrammed Construction Cost			6,452,000	
Total Estimated Project Cost			53,543,000	
Allocations to 30 September 1995			7,569,000	
Conference Allowance for FY 1996			1,000,000	
Allocation for FY 1996			1,000,000	
Allocations through FY 1996			8,569,000	22
Allocation Requested for FY 1997			0	22
Programmed Balance to Complete after FY 1997			26,749,000	
Unprogrammed Balance to Complete after FY 1997			3,797,000	

STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Part 1	1	Being Determined
Parts 2-4	0	Indefinite
Entire project	0	Being Determined [1]

PHYSICAL DATA	
Part 1	
Road Relocations:	3 locations
Utility Relocations:	4 locations
Levee:	3.5 miles
Gravity Drains:	1
Closure Structures:	2
Pump Station:	650 cfs
Ponding Area:	505 acres
Relief Wells:	47
Part 2 (North Gabouri Creek)	
Channel Widening:	0.62 miles
Bridge Relocations:	2
Part 3 (South Gabouri Creek)	
Channel Widening:	1.23 miles
Bridge Removal:	1
Low Water Crossing:	1
New Bridges:	2
Small Levee:	0.28 miles
Part 4 (Recreation)	
Hiking/Biking Trails:	5.05 miles
Exercise Trail:	1 mile
Picnic Tables:	18
Softball Fields:	2

JUSTIFICATION: Ste. Genevieve was founded on the west bank of the Mississippi River by French colonists. The earliest firm documentation of the settlement is a census taken in 1752, although some estimates place the founding as early as 1723. Over a period of years after the flood of 1785, the town was gradually moved from its original location to higher ground at its present location. In 1960 the Secretary of Interior designated a major part of the city and the agricultural fields between the town and the river a national Historic Landmark District. Ste. Genevieve was in the first group of six landmark districts so designated, a group that included Williamsburg, Virginia; Charleston, South Carolina; and Old Deerfield, Massachusetts. Ste. Genevieve is significant and unique because it has been occupied continuously since it was settled and

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[1] For programmed work only; remaining work is unprogrammed pending a decision to construct these features.

[2] Includes $130,000 Part 2 cash contribution less $110,000 Part 2 Federal payment, $183,000 Part 3 cash contribucion and $98,000 non-Federal payment for recreation.

because many of its earliest French colonial buildings were not destroyed during the intervening years. One fourth of all of North America's French colonial buildings are located in Ste. Genevieve. Ste. Genevieve contains the only collection of French colonial houses anywhere on the continent. Its many old residences, its archives and traditions, and its historical continuity make it a living memorial to the settlement and development of America. The 1990 population of Ste. Genevieve was 4,411. Most of the National Historic Landmark District is subject to flooding. The town has no Federally constructed flood protection, although agricultural areas directly across the Mississippi River and up and downstream from Ste. Genevieve are protected by Federally constructed levees. In recent years the community has suffered major Mississippi River floods in 1973, 1979, 1982, 1983, 1986, 1990, 1993 and 1995. The 1973 flood caused an estimated $3,000,000 in damages in Ste. Genevieve. Damages from the 1982 flood were estimated by local officials to be $2,400,000. The 1993 flood reached a stage equal to the theoretical 500-year flood in Ste. Genevieve, more than 22 feet above flood stage. Most of the historic buildings were saved by a monumental flood fight effort. According to community officials, bills received from the flood fight totaled $2,000,000, not including donated materials and volunteer time. Volunteers came from all over the United States to fight the flood. This figure also does not include flood damages or post-flood recovery. The 1995 flood was the second highest flood on record in Ste. Genevieve. Other Mississippi River floods occur in Ste. Genevieve more frequently than the major floods, and the community frequently prepares for flood fights. The town is also damaged by flooding along North and South Gabouri Creeks due to local rainfall, but the number of buildings flooded by the creeks is small compared to those flooded by the Mississippi River. As stated in the authorizing language, average annual benefits are equal to average annual costs due to historic preservation benefits.

FISCAL YEAR 1997: The total program amount, including the requested amount and the unobligated carryover amounts of $0 and $4,486,000, respectively, will be applied as follows:

Initiate:	North Closure Structure	$ 600,000
	Union Pacific Railroad Work, North Closure	62,000
	Burlington Northern Railroad Work, North Closure	76,000
	Levee, Ditches, Grading	2,604,000
	Highway 61 Levee Segment	44,000
Planning, Engineering and Design		500,000
Supervision and Administration		600,000
Total		$4,486,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts contained in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Costs
Provide lands, easements, and rights-of-way.	$ 2,156,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary for the construction of the project.	3,757,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of recreation facilities.	98,000	$ 2,000
Pay 5 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities.	8,417,000	116,000
Total Non-Federal Costs	$ 14,428,000	$118,000

STATUS OF LOCAL COOPERATION: The project sponsor is the Ste. Genevieve Joint Levee Commission, which is composed of members from the City of Ste. Genevieve, Ste. Genevieve County Levee District Number 2, and Ste. Genevieve County Levee District Number 3. The City assembled the financing to cover the first cost of Part 1 of the project, and possibly Parts 2, 3 and 4 depending on how they may be redesigned in the future. This financing consists of a city sales tax passed in November 1994 that generates about $240,000 per year and does not expire until the project is completed, a grant of $5,500,000 from the National Park Service through the National Trust for Historic Preservation, and a $5,050,000 Community Development Block Grant from the State of Missouri. The commission will purchase the lands required for the project through the powers of Levee Districts 2 and 3 and will operate and maintain the project by using Levee District 3's power to impose property taxes for operating and maintaining flood protection works. The Project Cooperation Agreement was executed on 8 August 1995.

23-577 O - 96 - 7

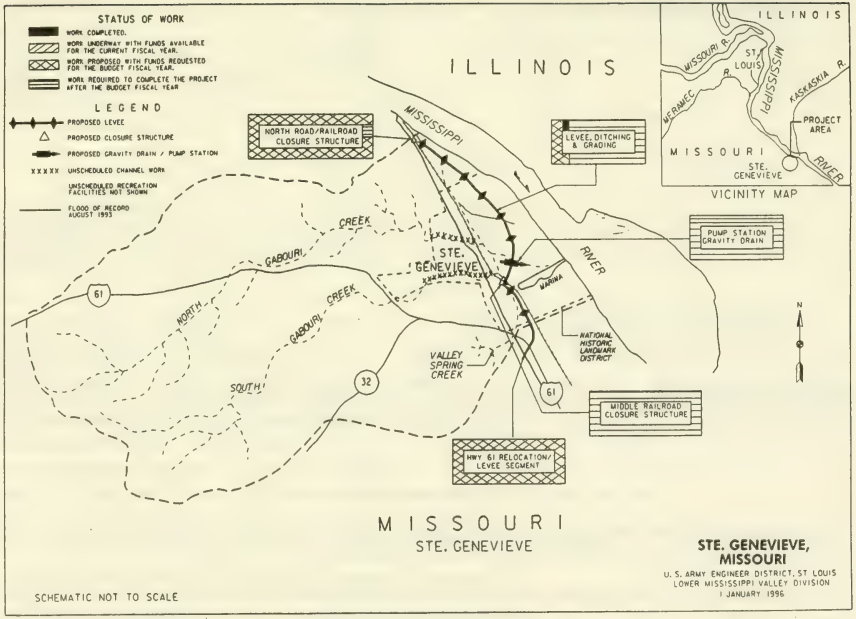
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $39,115,000 is an increase of $335,000 from the latest estimate ($38,780,000) presented to Congress (Fiscal Year 1996). This change includes the following item:

Item	Amount
Price Escalation on Construction Features	$335,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Impact Statement was completed as part of the Feasibility Report in June 1984. An Environmental Assessment with a Finding of No Significant Impact was signed by the District Commander on 30 January 1995.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1990 and funds to initiate construction were appropriated in Fiscal Year 1995. A portion of a levee access road was constructed in Fiscal Year 1995. The scheduled completion date for programmed work is being determined, which is the same information last presented to Congress (Fiscal Year 1996).

The Phase 1 levee project requires environmental mitigation due to adverse impacts on 11.2 acres classified as "waters of the United States." A 53.2 acre wetland mitigation area is included in Part 1 of the project. Estimated fish and wildlife mitigation costs are $138,000.


STATUS OF WORK
WORK COMPLETED.
WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR.
WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR
LEGEND
PROPOSED LEVEE
PROPOSED CLOSURE STRUCTURE
PROPOSED GRAVITY DRAIN / PUMP STATION
XXXXX UNSCHEDULED CHANNEL WORK
UNSCHEDULED RECREATION FACILITIES NOT SHOWN
FLOOD OF RECORD AUGUST 1993
ILLINOIS
MISSISSIPPI
NORTH ROAD/RAILROAD CLOSURE STRUCTURE
LEVEE, DITCHING & GRADING
PUMP STATION (GRAVITY DRAIN)
STE. GENEVIEVE
MARINA
RIVER
GABOURI CREEK
NORTH GABOURI CREEK
SOUTH
VALLEY SPRING CREEK
NATIONAL HISTORIC LANDMARK DISTRICT
MIDDLE RAILROAD CLOSURE STRUCTURE
HWY. 61 RELOCATION/ LEVEE SEGMENT
61
32
N
MISSOURI
STE. GENEVIEVE
SCHEMATIC NOT TO SCALE
ILLINOIS
MISSOURI R.
ST. LOUIS
MISSISSIPPI R.
KASKASKIA R.
MERAMEC R.
PROJECT AREA
MISSOURI
STE. GENEVIEVE
RIVER
VICINITY MAP
STE. GENEVIEVE, MISSOURI
U. S. ARMY ENGINEER DISTRICT, ST. LOUIS
LOWER MISSISSIPPI VALLEY DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Major Rehabilitation - Locks and Dams (Navigation)

PROJECT: Lock and Dam 24, Mississippi River, Illinois and Missouri (Continuing)

LOCATION: Lock and Dam 24, is located in Calhoun County, Illinois, and Pike County, Missouri, at approximately Mile 273.5 above the mouth of the Ohio River in the vicinity of Clarksville, Missouri.

DESCRIPTION: The project plan provides for the rehabilitation of portions of the structure. The work will include replacement of miter gates, auxiliary lock closure structure, power distribution system, lock motors and controllers, control system, and miter gate machinery; addition of a protection cell, bendway weirs, and debris openings in the dam guard wall; and repairs to several dam bridge columns. All work is programmed.

AUTHORIZATION: River and Harbor Act of 1935, Water Resources Development Acts of 1986 and 1992.

REMAINING BENEFIT-REMAINING COST RATIO: 2.6 to 1 at 8 percent.

TOTAL BENEFIT-COST RATIO: 2.3 to 1 at 8 percent.

INITIAL BENEFIT-COST RATIO: 2.3 to 1 at 8 percent (FY 1996).

BASIS OF BENEFIT-COST RATIO: Based on the Major Rehabilitation Report, Lock and Dam No. 24, Mississippi River, approved in June 1993 at October 1992 price levels. Benefit-cost ratio is a composite of all items analyzed for major rehabilitation.

SUMMARIZED FINANCIAL DATA			STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
			Entire Project	0	Being Determined
Estimated Federal Cost		23,430,000			
General Appropriation	11,715,000				
Inland Waterways Trust Fund	11,715,000				
Estimated Non-Federal Cost		0			
Total Estimated Project Cost		23,430,000			

	GENERAL APPNS.	INLAND WATERWAYS TRUST FUND	ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1995	0	0	
Conference Allowance for FY 1996	1,000,000	1,000,000	
Allocation for FY 1996	384,000[1]	384,000[1]	
Allocations through FY 1996	384,000	384,000	3
Allocation Requested for FY 1997	1,500,000	1,500,000	16
Programmed Balance to Complete after FY 1997	9,831,000	9,831,000	
Unprogrammed Balance to Complete after FY 1997	0	0	

PHYSICAL DATA

Lock: Major rehabilitation of the existing lock will include replacing miter gates, power distribution system, motors, controllers, and machinery; and construction of a protection cell, bendway weirs, and debris openings in the guard wall.

Dam: Major rehabilitation of the existing dam will include replacing the power distribution and control systems, the auxiliary lock closure structure, and repairing the bridge columns.

JUSTIFICATION: Lock and Dam 24 has been operating for over 50 years. While ordinary maintenance has been performed to keep the facility operating, the wear and tear on some items is beyond ordinary maintenance. Consequently, in order to provide an acceptable level of reliability, major rehabilitation of various structural, electrical, and mechanical components of the facility must be undertaken. The average annual benefits, all navigation, are $4,735,000.

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[1] Reflects $83,000 reduction assigned as savings and slippage and $533,000 reprogrammed from the project.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue:	Bridge Columns	$2,190,000
	Electrical and Mechanical Rehabilitation	270,000
	Planning, Engineering, and Design	270,000
	Supervision and Administration	270,000
	Total	$3,000,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, 50 percent of the total cost of construction will be derived from the Inland Waterways Trust Fund.

STATUS OF LOCAL COOPERATION: None required.

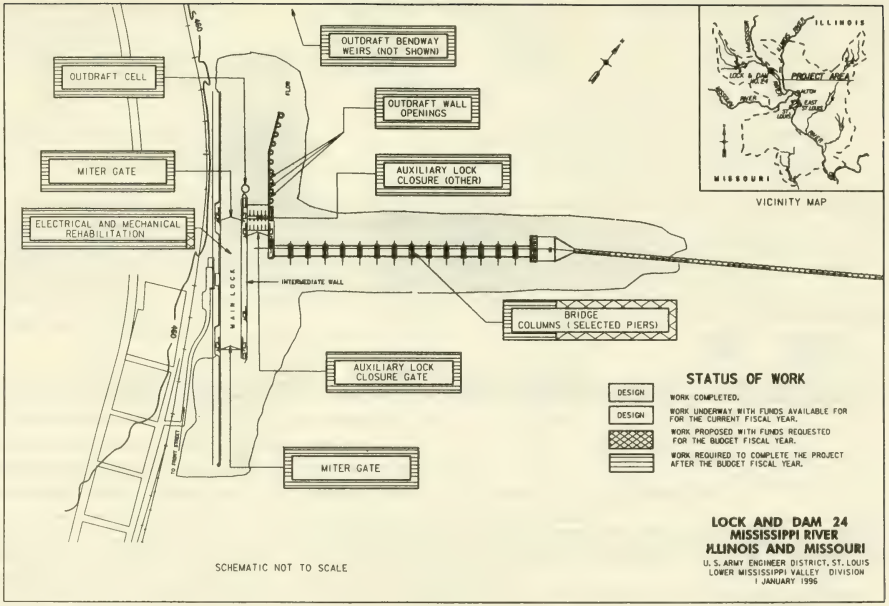
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $23,430,000 is an increase of $330,000 from the latest estimate ($23,100,000) submitted to Congress (Fiscal Year 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$386,000
Design Changes	$716,000
Total	$330,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An environmental assessment resulted in a Finding of No Significant Impact (FONSI) which was signed 1 February 1993. The rehabilitation report was coordinated with the U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, and the Missouri and Illinois Departments of Conservation. The U.S. Fish and Wildlife Service concurred with the biological assessment contained in the environmental assessment.

OTHER INFORMATION: Funds to initiate construction were appropriated in Fiscal Year 1996.

The project requires no mitigation.


OUTDRAFT BENDWAY WEIRS (NOT SHOWN)
OUTDRAFT CELL
OUTDRAFT WALL OPENINGS
MITER GATE
AUXILIARY LOCK CLOSURE (OTHER)
ELECTRICAL AND MECHANICAL REHABILITATION
INTERMEDIATE WALL
MAIN LOCK
BRIDGE COLUMNS (SELECTED PIERS)
AUXILIARY LOCK CLOSURE GATE
MITER GATE
SCHEMATIC NOT TO SCALE
ILLINOIS
PROJECT AREA
MISSOURI
VICINITY MAP
STATUS OF WORK
DESIGN
WORK COMPLETED.
DESIGN
WORK UNDERWAY WITH FUNDS AVAILABLE FOR FOR THE CURRENT FISCAL YEAR.
WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR.
LOCK AND DAM 24
MISSISSIPPI RIVER
ILLINOIS AND MISSOURI
U. S. ARMY ENGINEER DISTRICT, ST. LOUIS
LOWER MISSISSIPPI VALLEY DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Major Rehabilitation - Locks and Dams (Navigation)

PROJECT: Lock and Dam 25, Mississippi River, Illinois and Missouri (Continuing)

LOCATION: Lock and Dam 25 is located in Calhoun County, Illinois, and Lincoln County, Missouri, at approximately Mile 241.1 above the mouth of the Ohio River in the vicinity of Winfield, Missouri.

DESCRIPTION: The project plan provides for the rehabilitation of portions of the structure. The work will include rehabilitation or replacement of miter gates, culvert valves, auxiliary lock closure structure, lock dewatering system, Illinois abutment, Sandy Slough bridge, and selected mechanical and electrical items (power distribution system, lock motors and controllers, control system, and miter gate machinery). All work is programmed.

AUTHORIZATION: River and Harbor Act of 1935 and Water Resources Development Acts of 1986 and 1992.

REMAINING BENEFIT-REMAINING COST RATIO: 5.7 to 1 at 8-1/2 percent.

TOTAL BENEFIT-COST RATIO: 4.0 to 1 at 8-1/2 percent.

INITIAL BENEFIT-COST RATIO: 4.2 to 1 at 8-1/2 percent (FY 1994).

BASIS OF BENEFIT-COST RATIO: Based on the Major Rehabilitation Report, Lock and Dam No. 25, Mississippi River, submitted June 1992 at October 1991 price levels. Benefit cost-ratio is a composite of all items analyzed for major rehabilitation.

SUMMARIZED FINANCIAL DATA			STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
			Entire Project	16	Being Determined
Estimated Federal Cost		21,150,000			
General Appropriation	10,575,000				
Inland Waterways Trust Fund	10,575,000				
Estimated Non-Federal Cost		0			
Total Estimated Project Cost		21,150,000			

	GENERAL APPNS.	INLAND WATERWAYS TRUST FUND	ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1995	2,014,000	2,014,000	
Conference Allowance for FY 1996	2,150,000	2,150,000	
Allocation for FY 1996	1,172,000[1]	1,172,000[1]	
Allocations through FY 1996	3,186,000	3,186,000	30
Allocation Requested for FY 1997	1,500,000	1,500,000	44
Programmed Balance to Complete after FY 1997	5,889,000	5,889,000	
Unprogrammed Balance to Complete after FY 1997	0	0	

PHYSICAL DATA

Lock: Major rehabilitation of the existing lock will include replacing miter gates, culvert valves, selected mechanical and electrical items, and installing a dewatering system.

Dam: Major rehabilitation of the existing dam will include replacing selected mechanical and electrical items, the auxiliary lock closure structure, and repairing the Illinois abutment.

Bridge: Major rehabilitation of the existing access bridge will include replacement with a higher load level, two-lane bridge.

JUSTIFICATION: Lock and Dam 25 has been operating for over 50 years. While ordinary maintenance has been performed to keep the facility operating, the wear and tear on some items is beyond ordinary maintenance. Consequently, in order to provide an acceptable level of reliability, major rehabilitation of various structural, geotechnical, electrical, and mechanical components of the facility must be undertaken. The average annual benefits, all navigation, are $8,924,000.

FISCAL YEAR 1997: The requested amount of $3,000,000 will be applied as follows:

Initiate and Complete:	
Auxiliary Lock Closure Rehabilitation	$1,188,000
Complete:	
Auxiliary Lock Closure Gates/Miter Gate Replacement	1,398,000
Planning, Engineering, and Design	132,000
Supervision and Administration	282,000
Total	3,000,000

[1] Reflects $178,000 reduction assigned as savings and slippage and $800,000 reprogrammed from the project.

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, 50 percent of the total cost of construction will be derived from the Inland Waterways Trust Fund.

STATUS OF LOCAL COOPERATION: None required.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $21,150,000 is a decrease of $250,000 from the latest estimate ($21,400,000) submitted to Congress (FY 1996). This change includes the following item:

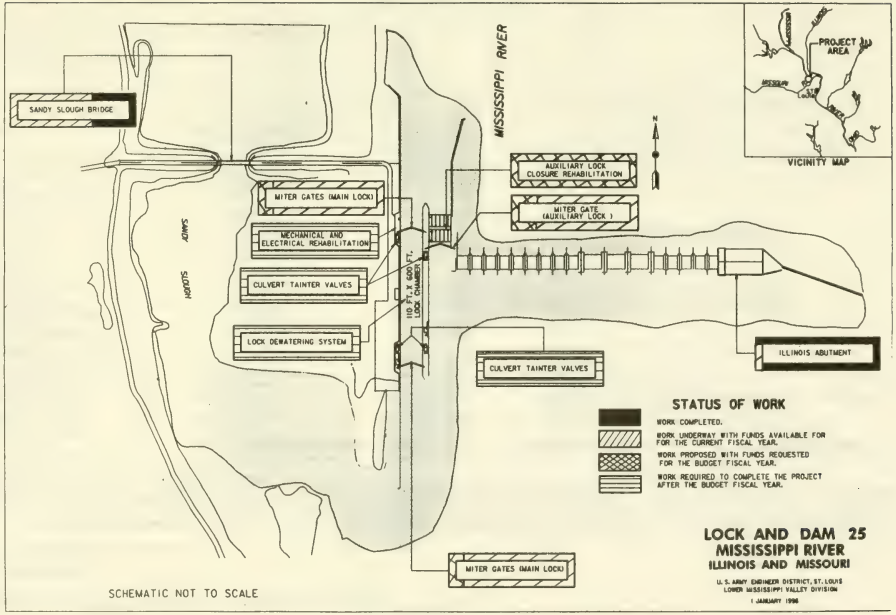
Item		Amount
Price Escalation on Construction Features	-	$250,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Assessment resulted in a Finding of No Significant Impact (FONSI) which was signed 5 June 1992.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1994.

The project requires no mitigation.

200


SANDY SLOUGH BRIDGE
MISSISSIPPI RIVER
SANDY SLOUGH
MITER GATES (MAIN LOCK)
MECHANICAL AND ELECTRICAL REHABILITATION
CULVERT TAINTER VALVES
LOCK DEWATERING SYSTEM
110 FT. X 600 FT. LOCK CHAMBER
AUXILIARY LOCK CLOSURE REHABILITATION
MITER GATE (AUXILIARY LOCK)
CULVERT TAINTER VALVES
ILLINOIS ABUTMENT
MITER GATES (MAIN LOCK)
N
PROJECT AREA
MISSOURI
VICINITY MAP
STATUS OF WORK
WORK COMPLETED.
WORK UNDERWAY WITH FUNDS AVAILABLE FOR FOR THE CURRENT FISCAL YEAR.
WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR.
LOCK AND DAM 25
MISSISSIPPI RIVER
ILLINOIS AND MISSOURI
U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
LOWER MISSISSIPPI VALLEY DIVISION
1 JANUARY 1996
SCHEMATIC NOT TO SCALE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation

a. Channels and Harbors

The budget estimate of $115,961 provides for essential operation and maintenance on 30 channel projects named in the list which follows. The work to be accomplished under this activity consists of operating and maintaining the coastal navigation channels, harbors and anchorages by means of dredging, constructing bulkheads and spoil disposal areas, snagging, and repairing channel stabilization works, navigation structures, and harbor jetties, all as authorized in the laws pertaining to river and harbor projects.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Arkansas			
Helena Harbor	364,000 (30,000) (334,000)	455,000 (25,000) (430,000)	1. None. 2. None.
Osceola Harbor	402,000 (30,000) (372,000)	426,000 (25,000) (401,000)	1. None. 2. None.
White River	2,595,000 (105,000) (2,490,000)	2,257,000 (67,000) (2,190,000)	1. Variation in dredge surveys. 2. None.
Yellow Bend Port	137,000 (12,000) (125,000)	113,000 (13,000) (100,000)	1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Kentucky			
Elvis Stahr Harbor	389,000 (35,000) (354,000)	420,000 (28,000) (392,000)	1. Variation in dredge surveys. 2. None.
Louisiana			
Atchafalaya River, Bayous Chene, Boeuf and Black	9,269,000 (159,000) (9,110,000)	8,281,000 (190,000) (8,091,000)	1. Variation in survey requirements 2. Dredging.
Bartaria Bay Waterway	2,235,000 (147,000) (2,088,000)	497,000 (97,000) (400,000)	2. Variation in survey requirements. 2. Dredging.
Bayou LaFourche and Lafourche Jump Waterway	10,000 (10,000) (0)	10,000 (10,000) (0)	1. None. 2. None.
Calcasieu River and Pass	7,235,000 (800,000) (6,435,000)	4,535,000 (820,000) (3,715,000)	1. None. 2. Dredging.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Freshwater Bayou	1,657,000 (927,000) (730,000)	1,947,000 (997,000) (950,000)	1. None. 2. None.
Gulf Intracoastal Waterway	16,130,000 (6,261,000) (9,869,000)	16,603,000 (6,793,000) (9,810,000)	1. None. 2. Dredging.
Houma Navigation Canal	1,772,000 (111,000) (1,661,000)	2,321,000 (91,000) (2,230,000)	1. Variation in Environmental Compliance. 2. Dredging.
Lake Providence	281,000 (21,000) (260,000)	321,000 (23,000) (298,000)	1. None. 2. None.
Madison Parish Port	37,000 (13,000) (24,000)	38,000 (13,000) (25,000)	1. None. 2. None.
Mississippi River Baton Rouge to Gulf of Mexico	44,456,000 (2,931,000) (41,525,000)	46,155,000 (2,970,000) (43,185,000)	1. None. 2. Dredging.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Mississippi River - Gulf Outlet	13,862,000 (425,000) (13,437,000)	12,828,000 (278,000) (12,550,000)	1. Variation in survey requirements. 2. Dredging.
Mississippi River Outlets at Venice	1,400,000 (170,000) (1,230,000)	2,190,000 (90,000) (2,100,000)	1. Variation in survey requirements. 2. Dredging.
Tangipahoa	25,000 (25,000) (0)	150,000 (0) (150,000)	1. Variation in survey requirements. 2. None.
Waterway from Empire, LA to the Gulf of Mexico	270,000 (0) (270,000)	115,000 (5,000) (110,000)	1. Variation in survey requirements. 2. None.
Waterway from IWW to B. Dulac	80,000 (0) (80,000)	225,000 (5,000) (220,000)	1. Variation in survey requirements. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Mississippi			
Claiborne County Port	148,000 (3,000) (145,000)	3,000 (3,000) (0)	1. None. 2. Variation in dredging requirements.
Mouth of Yazoo River	109,000 (26,000) (83,000)	78,000 (26,000) (52,000)	1. None. 2. None.
Rosedale Harbor	394.000 (20,000) (374,000)	348,000 (22,000) (326,000)	1. None. 2. None.
Yazoo River, MS	3,000 (3,000) (0)	15,000 (15,000) (0)	1. Variation in survey requirements. 2. None.
Missouri			
Caruthersville Harbor	199,000 (35,000) (164,000)	315,000 (22,000) (293,000)	1. Variation in survey requirements. 2. None.
Mississippi River Between Ohio & Missouri Rivers	18,150,000 (3,909,000) (14,241,000)	14,299,000 (3,588,000) (10,711,000)	1. None. 2. Dredging.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
New Madrid Harbor	257,000 (30,000) (227,000)	265,000 (25,000) (240,000)	1. None. 2. Variation in dredging requirements.
Southeast MO Port	150,000 (30,000) (120,000)	101,000 (10,000) (91,000)	1. Perform sedimentation surveys. 2. None.
Tennessee			
Wolf River Harbor	377,000 (35,000) (342,000)	650,000 (20,000) (630,000)	1. Variation in survey requirements. 2. Dredging.
TOTAL - Channels and Harbors	122,418,000 (16,303,000) (106,115,000)	115,961,000 (16,271,000) (99,690,000)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont'd)

b. Locks and Dams

The program request of $34,261,000 provides for the Operation and Maintenance requirements of eight canalized waterways including portions of the Illinois Waterway and Mississippi River projects within the Division boundaries. Requirements include: operation and ordinary maintenance of project facilities; labor, supplies, materials and parts for day-to-day functioning, and periodic maintenance, repairs, and replacements.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Arkansas			
Ouachita and Black Rivers, AR and LA	5,133,000 (4,401,000) (732,000)	5,763,000 (4,653,000) (1,110,000)	1. Variation in survey requirements. 2. Dredging.
Illinois Waterway (LMVD)	1,440,000 (522,000) (918,000)	881,000 (573,000) (308,000)	1. None. 2. Dredging.
Kaskaskia River	1,717,000 (948,000) (769,000)	1,556,000 (1,000,000) (556,000)	1. None. 2. None.
Mississippi River between Missouri River and Minneapolis, MN	12,052,000 (5,447,000) (6,605,000)	13,081,000 (5,436,000) (7,645,000)	1. None. 2. Dredging.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Louisiana			
Bayou Teche	287,000 (167,000) (120,000)	119 000 (69,000) (50,000)	1. Variation in survey requirements. 2. None.
Bayou Teche and Vermilion River	25,000 (0) (25,000)	25,000 (0) (25,000)	1. None. 2. None.
Mermentau River	2,684,000 (809,000) (1,875,000)	1,000,000 (815,000) (185,000)	1. None. 2. Dredging.
Red River Waterway, Mississippi River to Shreveport, LA	10,345,000 (4,866,000) (5,479,000)	9,853,000 (5,065,000) (4,788,000)	1. None. 2. Dredging.
Mississippi			
Pearl River, MS and LA	(271,000) (0)	271,000 (383,000) (1,600,000)	1,983,000 1. None 2. Dredging.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
TOTAL - Locks and Dams	33,954,000 (17,431,000) (16,523,000)	34,261,000 (17,994,000) (16,267,000)	
TOTAL - Navigation	156,372,000 (33,734,000) (122,638,000)	150,222,000 (34,265,000) (115,957,000)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control

a. Reservoirs

The program request of $14,687,000 for the Operation and Maintenance of eight flood control reservoir projects providing the amount necessary for operational requirements. Annual requirements are for the necessary operation and ordinary maintenance of project facilities; labor, supplies, materials and parts required for day-to-day functioning of the projects; and contact law enforcement. The requested amount also applications of special recreation user fees for recreation areas.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Illinois			
Carlyle Lake	4,145,000 (2,532,000) (1,613,000)	4,497,000 (2,498,000) (1,999,000)	1. None. 2. None.
Lake Shelbyville	4,888,000 (3,265,000) (1,623,000)	5,763,000 (2,845,000) (2,918,000)	1. None. 2. Maintenance of recreation facilities and implement shoreline restoration.
Rend Lake	3,484,000 (2,378,000) (1,106,000)	3,568,000 (2,056,000) (1,512,000)	1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Louisiana			
Bayou Bodcau Reservoir	487,000 (473,000) (14,000)	520,000 (480,000) (40,000)	1. None 2. None
Caddo Lake	156,000 (140,000) (16,000)	138,000 (138,000) (0)	1. None. 2. None.
Wallace Lake	180,000 (166,000) (14,000)	165,000 (150,000) (15,000)	1. None. 2. None.
Missouri			
Union Lake	16,000 (0) (16,000)	16,000 (0) (16,000)	1. None. 2. None.
Wappapello Lake	20,000 (0) (20,000)	20,000 (0) (20,000)	1. None. 2. None.
TOTAL - Reservoirs	13,376,000 (8,954,000) (4,422,000)	14,687,000 (8,167,000) (6,520,000)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (Cont'd)

b. Channel Improvements, Inspections and Miscellaneous Maintenance

The budget estimate of $1,410,000 provides for inspection of completed works during the budget year. All work is programmed.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Bayou Pierre	25,000 (0) (25,000)	25,000 (0) (25,000)	1. None. 2. None.
Inspection of Completed	1,090,000	1,385,000	
Arkansas	(80,000)	(113,000)	1. Variation in inspection.
Illinois	(355,000)	(438,000)	
Kentucky	(4,000)	(3,000)	
Louisiana	(304,000)	(418,000)	
Missouri	(141,000)	(172,000)	
Mississippi	(79,000)	(114,000)	
Tennessee	(127,000) (0)	(127,000) (0)	2. None.
TOTAL - Channel Improvements	1,115,000	1,410,000	
Inspection and Misc	(1,090,000)	(1,385,000)	
Maintenance	(25,000)	(25,000)	
TOTAL - Flood Control	14,491,000 (10,044,000) (4,447,000)	16,097,000 (9,552,000) (6,545,000)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

3. Multiple Purpose Power Projects

The program request of $17,494,000 for the operation and maintenance of four multiple purpose projects provides the amount necessary for operation requirements. Annual requirements are for the necessary operation and ordinary maintenance of project facilities, labor, supplies, materials and parts required for day-to-day functioning of the project; and contract law enforcement. The requested amount also includes application of Special Recreation Use Fees for recreation areas.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	ESTIMATED OBLIGATIONS FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Blakely Mt. Dam Lake Ouachita	4,465,000 (3,920,000) (545,000)	4,595,000 (3,992,000) (603,000)	1. None. 2. None.
DeGray Lake	4,041,000 (3,377,000) (664,000)	4,088,000 (3,591,000) (497,000)	1. None. 2. None.
Narrow Dam-Lake Greeson	3,410,000 (2,923,000) (487,000)	3,614,000 (3,079,000) (535,000)	1. None. 2. None.
Missouri			
Clarence Cannon and Reservoir	5,329,000 (3,932,000) (1,397,000)	5,197,000 (3,594,000) (1,603,000)	1. None. 2. None.
TOTAL - Multiple Purpose	17,245,000 (14,152,000) (3,093,000)	17,494,000 (14,256,000) (3,238,000)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

4. Protection of Navigation

The aquatic program request shown provides for accomplishing the work necessary for the eradication of aquatic plant and project condition surveys.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Aquatic Growth	1,865,000	1,890,000	
Louisiana	(0)	(0)	1. None.
	(1,865,000)	(1,890,000)	2. None.
Project Condition Surveys	43,000	176,000	
Arkansas	(1,000)	(5,000)	1. Variation in survey requirements.
Illinois	(2,000)	(5,000)	
Kentucky	(2,000)	(5,000)	
Louisiana	(32,000)	(144,000)	
Mississippi	(2,000)	(5,000)	
Missouri	(2,000)	(5,000)	
Tennessee	(2,000)	(7,000)	
	(0)	(0)	2. None.
TOTAL - Protection of Navigation	1,908,000	2,066,000	
	(43,000)	(176,000)	
	(1,865,000)	(1,890,000)	
GRAND TOTAL - LOWER MISSISSIPPI VALLEY DIVISION	190,016,000	185,879,000	
	(57,973,000)	(58,249,000)	
	(132,043,000)	(127,630,000)	

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

SUMMARY MISSISSIPPI RIVER COMMISSION

Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MO, MS, & TN

	FY 1996 Allocation	FY 1997 Request	Increase or Decrease
General Investigations	$ 5,363,000	$ 2,906,000	$-2,457,000
Surveys	2,863,000	2,118,000	(-745,000)
Preconstruction Engineering and Design	2,500,000	788,000	(-1,712,000)
Construction	213,400,000	173,861,000	-39,539,000
Dam Safety Assurance	0	0	0
Operation and Maintenance	128,363,000	133,481,000	5,118,000
Project Operation	47,494,000	49,076,000	1,582,000
Project Maintenance	80,869,000	84,405,000	3,536,000
Less Reduction for Savings and Slippage	-39,241,000	-17,748,000	-21,493,000
Less Reduction for Flood Control, Coastal Emergencies	-5,000,000	0	-5,000,000
GRAND TOTAL	$302,885,000	$292,500,000	$10,385,000

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS MO and TN, General Investigations, Fiscal Year 1997

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

1. SURVEYS - NEW - None.

2. SURVEYS - CONTINUING

a. Navigation Studies: None.

b. Flood Damage Prevention Studies: The amount of $1,783,000 is requested for the continuation of four studies.

LOUISIANA

Morganza, Louisiana to the Gulf of Mexico	4,805,000	1,218,000	500,000	965,000	2,122,000

The study area is located in south Louisiana and includes portions of Terrebonne, and Lafourche, Parishes. The study area is subject to primarily backwater, and tidal flooding. Extensive flooding occurred in the study area in 1973. Less extensive, but still widespread flooding, has occurred since that time, notably in 1989, May 1991, and 1992. In the May 1991 event, damages in Lafourche and Terrebonne Parishes were estimated at $12,000,000. The Louisiana Department of Transportation and Development has agreed to share equally in the cost of the feasibility phase. Between 1950 and 1990, the population increased from 61,000 to 97,000 or about 59 percent. Increases in population and other land use changes such as land clearing, subsidence and land loss have contributed to the increased stages. Also, there is a high probability that improvements to existing flood control system have not kept pace with population growth and land use changes that would increase runoff. The expected outcome of the study would be to recommend hurricane protection for Terrebonne and Lafourche Parishes. Fiscal Year 1996 funds are being used to continue the feasibility phase of the study. Fiscal Year 1997 funds will also be used to continue the feasibility studies. The preliminary estimated cost of the feasibility phase is $7,450,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$8,530,000
Reconnaissance Phase (Federal)	1,080,000
Feasibility Phase (Federal)	3,725,000
Feasibility Phase (Non-Federal)	3,725,000

The reconnaissance phase was completed in May 1995. The feasibility study completion date is being determined.

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS MO and TN, General Investigations, Fiscal Year 1997

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
MISSISSIPPI					
Mississippi Delta, MS	7,377,000	6,049,000	990,000	338,000	0

The Mississippi Delta, Mississippi, area is a primary center for agriculture in Mississippi. Devastating flooding in the spring of 1991 inundating approximately 600,000 acres in the Sunflower River Basin, including many small towns, illustrates the seriousness of flooding problems to be addressed by this study. Damages exceeded $40 million with over 1,000 residential, commercial, and other structures inundated.

Reconnaissance studies of this area identified conceptual alternative measures to meet the needs described above. These included channel improvement, weirs in streams, grade/water control structures, and environmental design features. Based on these conceptual plans, a flood control project was found to be feasible in the Mississippi Delta, Mississippi, reconnaissance report.

Fiscal Year 1996 funds are being used to continue the feasibility phase of the study. Funds requested for Fiscal Year 1997 will be used to complete feasibility studies. The estimated cost of the feasibility phase is $6,095,000.

The reconnaissance phase was completed in June 1993. The feasibility study is scheduled for completion in July 1997.

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS MO and TN, General Investigations, Fiscal Year 1997

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
TENNESSEE					
Reelfoot Lake, TN & KY	2,092,000	1,084,000	211,000	350,000	447,000

Reelfoot Lake is located in Lake and Obion Counties in northwest Tennessee and Fulton County in southwest Kentucky. The Reelfoot Lake Basin extends 35 miles in a southerly direction between Hickman, Kentucky, and the Obion River in Tennessee. The basin covers an area of 268 square miles with Reelfoot Lake covering 13,000 acres at normal pool elevation. The lake and its surrounding ecosystem provide unique and significant habitat for fish and wildlife resources. The existing spillway provides a very narrow range of acceptable water level management options. The limited management options, combined with underseepage of the spillway, has resulted in decreased flood storage availability and increased flood damages. Additionally, the topography and land use of the basin have resulted in an unusually high rate of sediment deposition in the lake. A reconnaissance report was completed in November 1993 and determined there was a need for fish and wildlife habitat restoration in the vicinity of Reelfoot Lake. The report concluded Corps projects had contributed, in part, to the degradation which has occurred at Reelfoot Lake. It was determined an alternative spillway, circulation channels in the lake, a sediment retention basin, waterfowl management units, and features for water level management at Lake Isom would aid in restoring fish and wildlife habitat in the basin while maintaining flood control capabilities of Reelfoot Lake. The feasibility study will investigate the need for and the feasibility of improvements in the area in the interest of fish and wildlife habitat restoration, flood control and allied purposes. The State of Tennessee, acting through the Tennessee Wildlife Resources Agency, signed the Feasibility Cost Sharing Agreement on 24 October 1994.

Fiscal Year 1996 funds are being used to continue the feasibility phase of the study. The funds requested for Fiscal Year 1997 will also be used to continue the feasibility phase of the study. The estimated cost of the feasibility phase is $2,620,000, which will be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$3,402,000
Reconnaissance Phase (Federal)	782,000
Feasibility Phase (Federal)	1,310,000
Feasibility Phase (Non-Federal)	1,310,000

The reconnaissance phase was completed in December 1994. The feasibility study completion date is being determined.

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS MO and TN, General Investigations, Fiscal Year 1997

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Wolf River, Memphis, TN	2,130,000	475,000	0	130,000	1,525,000

The Wolf River study area is located in Hardeman, Fayette, and Shelby Counties, Tennessee, and Tippah and Benton Counties, Mississippi. The Wolf River flows northwestward approximately 86 miles to its confluence with the Mississippi River at Memphis, Tennessee, meandering through bottom land hardwood forests in its upper reaches and a man-altered channel in its lower reaches.

The primary water resources problems in the basin are losses of nationally significant fish and wildlife habitat due in part to a previous Corps project. The lower basin has experienced a change in the hydraulic regime resulting from urbanization, especially in Shelby County, in the drying of seasonally flooded bottom land hardwoods and other wetlands, while severe channel instability problems resulted in the loss of riparian and fisheries habitat. The instabilities also threaten public infrastructure on the main channel and tributaries. Measures to stop the head cutting, fish pool weirs, reforestation, waterfowl habitat structures, and other measures to restore a more natural hydraulic regime to the surrounding wetlands are being considered to restore and protect the nationally significant fish and wildlife habitat in the basin. The Chickasaw Basin Authority, an agency of the state of Tennessee, and Shelby County, Tennessee, have indicated a willingness to cost share in feasibility studies.

No funds were allocated in Fiscal Year 1996. If the reconnaissance report is certified to be in accord with policy, the funds requested for Fiscal Year 1997 will be used to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $3,310,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of cost sharing is as follows:

Total Estimated Study Cost	$3,785,000
Reconnaissance Phase (Federal)	475,000
Feasibility Phase (Federal)	1,655,000
Feasibility Phase (Non-Federal)	1,655,000

The reconnaissance phase is scheduled for completion in September 1996. The feasibility study completion date is being determined.

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS MO and TN, General Investigations, Fiscal Year 1997

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
TOTAL - Flood Damage Prevention Studies	16,404,000	8,826,000	1,701,000	1,783,000	4,094,000
c. Shoreline Protection Studies: None.					
d. Special Studies: None.					
e. Comprehensive Studies: None.					
f. Collection and Study of Basic Data	N/A	N/A	288,000	335,000	N/A

Surveys, Gages, and Observations. The funds requested for Fiscal Year 1996 are for collection of essential basic data which are subsequently used in the planning and design of flood control projects. The data collected under this activity are for authorized projects or units thereof for which funds have not been appropriated. The data to be collected will consist of information on stream flow, rainfall, floods, and other items of related hydrologic nature.

TOTAL - Collection and Study of Basic Data	N/A	N/A	N/A	335,000	N/A
TOTAL - SURVEYS - Continuing	16,404,000[1]	8,826,000[1]	1,989,000	2,118,000	4,094,000[1]

[1] Excludes Collection and Study of Basic Data which is a continuing program.

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS MO and TN, General Investigations, Fiscal Year 1997

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

3. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - NEW START - None.

4. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - CONTINUING

a. Navigation: None.

b. Flood Control: The amount of $788,000 is requested for the completion of one study.

ARKANSAS

Eastern Arkansas Region Comprehensive Study (Grand Prairie Area General Reevaluation)	10,000,000	7,108,000	2,104,000	788,000	0

The study area, which is located in the alluvial valley of the Mississippi River, includes the drainage basins of Bayou Meto, Lower White River, Cache River, Big Creek, L'Anguille River and the St. Francis River in eastern Arkansas. The area includes all or part of 24 counties in eastern Arkansas, a 13,400 square mile area which represents 25 percent of the land area of the state. The study is a multipurpose study with primary emphasis on agricultural water supply, conservation, and fish and wildlife enhancement. The major problem identified is the depletion of the alluvial aquifer, which provides essentially all the water used for agricultural irrigation. Depletion of the alluvial aquifer is threatening the future of agriculture as it is presently practiced in the region. The aquifer has been exhausted to only the perennial yield in parts of the area, and if current irrigation trends continue, this life sustaining natural resource could be completely lost. This would also result in a catastrophic economic loss to the area, region, and nation. A draft feasibility report was submitted to the Mississippi River Commission in December 1990; however, the study was discontinued at that time and review of the report was never completed due to its recommendations being in conflict with Corps policy. The feasibility study identified five separate agricultural water supply and conservation plans. These were for the Grand Prairie, the Black River, the Little Red River, the White River, and the Bayou Meto areas. The plans range in cost from approximately $12 million to $506 million with benefit-cost ratios ranging from 1.0 to 5.1. The Appropriation Acts for Fiscal Years 1992, 1993, 1994, and 1995 directed the Corps to select and develop implementation plans for one area to serve as a demonstration project for agricultural water supply. The Grand Prairie area was selected. The plan identified in the feasibility report for the Grand Prairie area was estimated to cost $194 million and consists of a major pumping station and a network of new and improved channels with associated structures that would provide interbasin transfer of surface water to the water depleted areas. Included as an integral part of the plan are conservation measures, groundwater management strategies, on-farm storage reservoirs and fish and wildlife measures. Based on the unapproved economic analysis performed during the feasibility study (December 1990), the average annual benefits are estimated at $25 million, all for agricultural supply, with a benefit-cost ratio of 1.15 to 1. Significant additional benefits for fish and wildlife enhancement were not included in this analysis. The White River Regional Irrigation Water Distribution District, the identified project sponsor for the Grand Prairie area project, has provided formal correspondence stating their commitment and support of the project. The project is not authorized for construction. If authorized for implementation, the project would be cost shared in accordance with the provisions of the Water Resources Development Act of 1986 as amended.

Fiscal Year 1996 funds are being used to continue the general reevaluation for the Grand Prairie area. Fiscal Year 1997

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS MO and TN, General Investigations, Fiscal Year 1997

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

funds will be used to complete work on the general reevaluation for the Grand Prairie area. Preconstruction engineering and design was initiated in Fiscal Year 1992. Preconstruction engineering and design studies for the Grand Prairie Area general reevaluation will be completed and a draft report will be prepared in March 1997.

c. Shoreline Protection: None.

d. Multiple Purpose Power: None.

TOTAL - PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES - NEW AND CONTINUING	10,000,000	7,108,000	2,217,000	788,000	0
GRAND TOTAL - SURVEYS AND PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES	26,404,000	15,934,000	4,093,000	2,906,000	4,094,000

23-577 O - 96 - 8

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MO MS, & TN - Construction

PROJECT: Mississippi River and Tributaries, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri and Tennessee (Continuing)

LOCATION: The comprehensive project for Flood Control, Mississippi River and Tributaries will provide flood protection for the alluvial valley of the Mississippi River from Cape Girardeau, Missouri, to the Head of Passes, Louisiana; and for improvement of the Mississippi River for navigation from Cairo, Illinois, to Baton Rouge, Louisiana. It includes the main river, the basins of the St. Francis, White, Arkansas, Tensas, Red, Yazoo and Atchafalaya Rivers, the alluvial lands around Lake Pontchartrain, and the tributary streams in Western Tennessee and Kentucky. The completed project will provide protection against a project design flood, which will amount to a flow of 2,360,000 cubic feet per second at Cairo, Illinois, and 3,030,000 cubic feet per second at the latitude of Old River above Baton Rouge, Louisiana. This flow will divide near this point with 1,530,000 cubic feet per second doing down the Atchafalaya River and the West Atchafalaya and Morganza Floodways. The remaining 1,500,000 cubic feet per second will continue down the Mississippi River to a point above New Orleans, where 250,000 cubic feet per second will be diverted through the Bonnet Carre' Spillway to Lake Pontchartrain. The flow past New Orleans to the Gulf of Mexico will then be 1,250,000 cubic feet per second, which is the river's safe capacity.

The control of this large quantity of water will be accomplished by every practical means of flood control, especially reservoirs, levees, cutoffs, revetments, and floodways.

The justification of the funds requested is presented on separate sheets for each major feature of the project. These major features are termed "project" for the purposes of reporting, accounting and fiscal control, and where appropriate, are further separated into their separable units.

AUTHORIZATION: Flood Control Act of 1928, as amended.

SUMMARIZED FINANCIAL DATA		ACCUM. PCT. OF EST. FED. COST
Total Estimated Federal Cost	$11,501,214,000	
Allocations to 30 September 1995	6,222,299,000	
Allocations for FY 1996	215,900,000	
Allocations through FY 1996	6,438,199,000	56
Allocations Requested for FY 1997	174,649,000	58
Programmed Balance to Complete after FY 1996	3,915,896,312	
Unprogrammed Balance to Complete after FY 1996	972,469,688	

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal Cost estimate of $11,312,655,000 for the Mississippi River and Tributaries project is an decrease of $94,409,000 from the latest estimate ($11,407,064,000) submitted to Congress (FY 1995). Detail of the changes for features include in the FY 1996 budget request are shown under the individual features on the following pages of the Justification Data.

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO and TN - Construction

PROJECT: Helena and Vicinity, Arkansas - (New)

LOCATION: The project is located in Phillips County in east-central Arkansas approximately 60 miles southwest of Memphis, Tennessee.

DESCRIPTION: The project is an urban flood control project. The plan of improvement consists of 1.41 miles of channel improvement within the city limits of Helena, Arkansas. The plan includes 0.69 miles of earthen channel enlargement at the south end of the city limits, 0.19 miles of open concrete channel enlargement and 0.28 miles of underground concrete box culverts. This plan of improvement would provide approximately a 25-year level of protection for the downtown business district of the city of Helena and for the adjacent residential community. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 2.0 to 1 at 7-3/4 percent.

TOTAL BENEFIT-COST RATIO: 1.25 to 1 at 7-3/4 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are from the Helena and Vicinity, Arkansas, General Reevaluation Report dated January 1995 at October 1992 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED COST
Estimated Federal Cost		$ 5,700,000	
Estimated Non-Federal Cost		5,700,000	
Cash Contributions	$ 2,570,000		
Other Costs	3,130,000		
Total Estimated Project Cost		$11,400,000	
Allocations to 30 September 1995		$ 2,025,000	
Conference Allowance for FY 1996		0	
Allocation for FY 1996		0	
Allocations through FY 1996		2,025,000	36
Allocation Requested for 1997		150,000	38
Programmed Balance to Complete after 1997		3,525,000	
Unprogrammed Balance to Complete after 1997		0	

STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	0	Being Determined

PHYSICAL DATA

Lands and Damages: 17 acres

Relocations: 2 bridges and 50 utilities

Channels: 1.41 miles

JUSTIFICATION: The project provides drainage primarily for the city of Helena, Arkansas. Expected annual structural damage in the Standard Project Floodplain is approximately $1,849,000 in 1995 price levels, over half of which occurs to structures located in the 0-1.1 year flood zone ($927,000 in 1995 price levels). The project will reduce flooding in the urban area of Helena and a small rural area at the south edge of the city limits. The project will provide a 25-year level of protection along Main Outlet Ditch and prevent approximately $1,261,000 in total expected annual damages (1995 price levels).

Flooding impacts 637 residential and commercial structures and their contents within the Standard Project Floodplain. The structures and contents have a present value of approximately $64,414,000 (1995 price levels). Total damage from the Standard Project Floodplain event is estimated at $11,548,000 (1995 price levels). Average annual damages for such properties with and without project conditions are estimated at $518,000 and $1,849,000 (1995 price levels), respectively. Flooding has occurred to some extent on virtually an annual basis over the recent past. Major flooding occurred in 1973, 1974, 1980 and 1989. The plan of improvement addresses the need for flood damage reduction without significant detriment to the natural environment.

The project lies solely within Phillips County, Arkansas, with historically high unemployment.

Average annual benefits are as follows:

Annual Benefits	Amount
Flood Damage Prevention	$ 1,134,000
Employment	48,000
Other	7,000
Total	$1,189,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Planning, Engineering, and Design	$ 150,000
Total	$ 150,000

NON-FEDERAL COST: In accordance with the cost sharing legislation proposed by the Administration, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursement	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights-of-way, and borrow and excavated dredged material disposal areas	$1,587,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary for the construction of the project	1,543,000	
Pay 14 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 50 percent and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities	2,570,000	$1,000
Total Non-Federal Costs	$5,700,000	$1,000

The non-Federal sponsor will be required to make all payments concurrently with project construction.

Floodplain Management Requirement

Communities must agree to adopt additional flood plain management activities beyond the requirement to participate in the National Flood Insurance Program to qualify for Federal participation in a structural flood damage reduction project. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of storm water runoff, and preservation of open space.

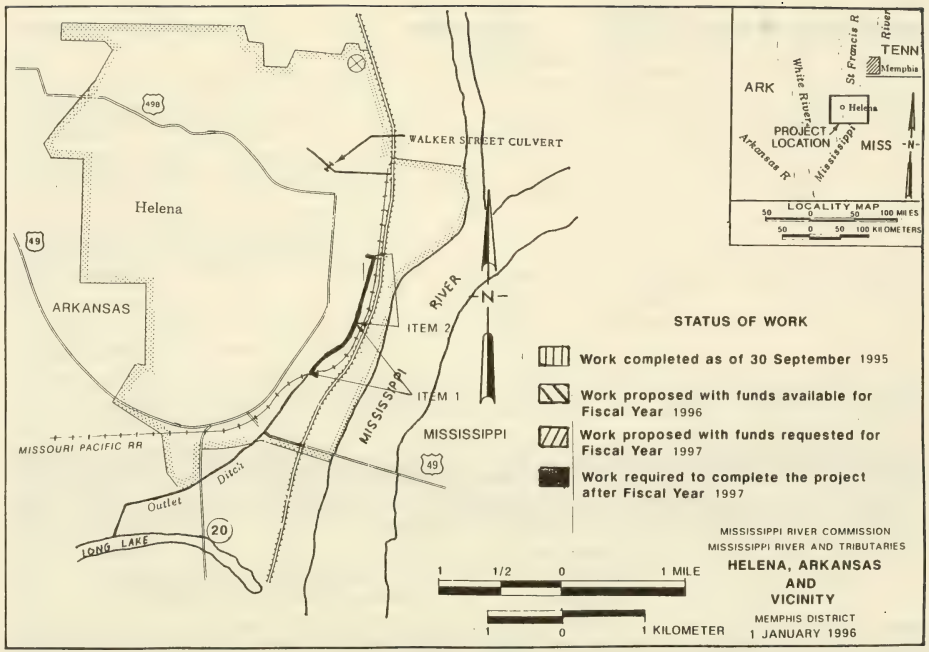
STATUS OF LOCAL COOPERATION: Local interests in the city of Helena, Arkansas have expressed a strong interest in the project. The city of Helena has agreed to act as the primary sponsor. A number of meetings were held with Helena city officials to discuss cost sharing requirements consistent with the Water Resources Development Act of 1986. A financing plan consistent with the Water Resources Development Act of 1986 is being developed. Most of the construction would occur under existing city streets or on right-of-way already owned by the city. The requirements of 50-50 cost sharing and additional floodplain management activities have not been discussed with the project sponsor.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $5,700,000 is a decrease of $8,500,000 from the latest estimate ($14,200,000) presented to Congress (FY 1991). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ -170,000
Other Estimating Adjustments (including contingency adjustments)	-8,330,000
Total	$-8,500,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An environmental assessment/FONSI was completed as a part of the September 1992 General Reevaluation Report. Environmental impacts of this project will be minimal since construction will be completed within the already highly developed city limits. Water Quality Certification has been granted by the State of Arkansas.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1990. During Preconstruction Engineering and Design, the authorized project was reevaluated and a pumping station and gated culvert were eliminated at a significant cost savings.


WALKER STREET CULVERT
Helena
ARKANSAS
498
49
ITEM 2
ITEM 1
MISSISSIPPI RIVER
MISSISSIPPI
MISSOURI PACIFIC RR
Outlet Ditch
LONG LAKE
20
N
STATUS OF WORK
Work completed as of 30 September 1995
Work proposed with funds available for Fiscal Year 1996
Work proposed with funds requested for Fiscal Year 1997
Work required to complete the project after Fiscal Year 1997
1 1/2 0 1 MILE
1 0 1 KILOMETER
MISSISSIPPI RIVER COMMISSION
MISSISSIPPI RIVER AND TRIBUTARIES
HELENA, ARKANSAS AND VICINITY
MEMPHIS DISTRICT
1 JANUARY 1996
LOCALITY MAP
50 0 50 100 MILES
50 0 50 100 KILOMETERS
ARK
TENN
MISS
Memphis
Helena
PROJECT LOCATION
White River
St. Francis R
Arkansas R
Mississippi
N

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, TN - Construction

PROJECT: Mississippi River Levees, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri and Tennessee (Continuing)

LOCATION: The Mississippi River Levee system on the west bank extends from Allenville, Missouri, on the Little River Diversion Channel generally southward to the vicinity of Venice, Louisiana, and on the east bank from Hickman, Kentucky, to opposite Venice, Louisiana, except where interrupted by hills and tributary streams. Included in the system are the levees which protect Mounds, Mound City and Cairo, Illinois, and the New Madrid Levee and Floodway.

DESCRIPTION: The plan of improvement provides for raising, strengthening, and in some cases, extending existing levees to provide protection against the project flood. This feature includes 1,519.5 miles of levees and 14.8 miles of floodwall. All work is programmed.

AUTHORIZATION: Flood Control Acts of 1928, 1936, 1938, 1941, 1946, 1950, 1954, 1962, 1965, 1968, and PL 92-222.

REMAINING BENEFIT-REMAINING COST RATIO: 34.4 to 1 at 2-1/2 percent. The benefit-cost ratio is based on all features which comprise the Main Stem system of the Mississippi River and Tributaries project.

TOTAL BENEFIT-COST RATIO: 7.9 to 1 at 2-1/2 percent.

INITIAL BENEFIT-COST RATIO: This project feature of the Main Stem system was authorized in Fiscal Year 1928 and initial construction funds were provided in Fiscal Year 1928. The authorized comprehensive review of the Mississippi River and Tributaries project, contained in House Document 308/88/2, as updated to reflect 1965 conditions and price levels, is considered to be the base estimate for the Main Stem system. The benefit-cost ratio for the Main Stem components computed for the base estimate was 7.9 to 1.

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in October 1979 at 1979 price levels. The latest comprehensive analysis was conducted in 1974. The 1979 analysis is the same as the 1974 analysis except that certain undocumented benefit categories were eliminated and 1979 prices were used.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST
Estimated Total Appropriation Requirement		$1,452,000,000	
Future Non-Federal Reimbursement		674,000	
Estimated Federal Cost (Ultimate)		1,451,326,000	
Estimated Non-Federal Cost		$ 68,800,000	
Cash Contributions	$ 1,016,000		
Other Costs	67,110,000		
Reimbursement	674,000		
Recreation Facilities $674,000			
Total Estimated Project Cost		$1,520,126,000	
Allocations to 30 September 1995		$ 745,016,000	
Conference Allowance for FY 1996		30,000,000	
Allocation for FY 1996		31,369,000 [1]	
Allocations through FY 1996		776,385,000	54
Allocation Requested for FY 1997		$ 24,369,000	55
Programmed Balance to Complete After FY 1997		651,246,000	
Unprogrammed Balance to Complete After FY 1997		0	

STATUS: (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	90	Being Determined

PHYSICAL DATA	
Channel and Canals	72 miles
Levees:	
Average Height	20-35 feet
Length	1,519.5 miles
Floodwalls:	
Average Height	14-23 feet
Length	14.8 miles
Levee Berms	637.8 miles
Levee Roads	1,500.0 miles
Pumping Stations	5

JUSTIFICATION: The Mississippi River Levees project is one of the Main Stem components which comprise the plan of improvement for the control of floods on the Mississippi River. The contribution of each element to the overall plan is inseparably related to that made by the others. Therefore, their benefits are inseparable and a composite benefit-cost ratio for the Main Stem components is necessary. The components are: Mississippi River Levees, Channel Improvement, South Bank Arkansas and South Bank Red River Levees, the Atchafalaya Basin, Atchafalaya Floodway System, Old River and a few miscellaneous items.

[1] Reflects $3,392,000 reduction assigned as savings and slippage and $4,761,000 reprogrammed to the project.

The Mississippi River Levee System provides protection to 23,620 square miles and partial protection to an additional 3,780 square miles in the alluvial valley subject to flooding by the project flood. The alluvial valley is over 650 miles long and varies in width from 20 to 90 miles. Numerous railroads, highways, and airfields connecting the major transportation centers lie within the protected area as do several major transcontinental communication routes. In addition to the vast highly developed and productive agricultural areas, the levees afford protection to urban areas and many large and varied industries whose products have a vital bearing on the welfare, economy, and defense capabilities of this country.

The value of lands and improvements protected by authorized works against the design flood is $124.9 billion in 1995 dollars. This consists of 226,000 residential acres which include the City of New Orleans, 45,000 acres of commercial lands, 10 million acres of agricultural lands, and 6.5 million acres of woodland and marshland. The area subject to flooding by the project flood assuming no protective works is 22.7 million acres. The area that will be provided complete protection by the completed project is 15.1 million acres.

The maximum flood of record was the 1927 flood which overflowed about 26,000 square miles, caused the deaths of 214 people, rendered 637,000 people temporarily homeless, and caused property damages of $347.0 million. This would be equivalent to $9.3 billion damages in 1995 prices.

The next flood of magnitude was the 1973 flood which overflowed 16,875 square miles (10.8 million acres), caused the death of 28 people, and displaced approximately 45,300 persons. The deaths and displacements of persons would have been significantly higher without the project in place. Without Federal projects, approximately 19.8 million acres would have been inundated. Total damages with existing projects in operation were $643 million (1973 price levels). Damages without projects would have been $11.3 billion and total damages prevented by projects amounted to $10.6 billion. Expressed in 1995 prices, damages without the projects would have been $37.9 billion and damages prevented would have been $33.7 billion.

The benefit-cost ratio was derived by measuring the total benefits credited to those Main Stem components against their total cost. Average annual benefits for the composite of Main Stem features are as follows:

Annual Benefits	Amount
Flood Control	$2,734,073,000
Navigation	878,281,000
Area Redevelopment	9,035,000
Recreation	2,374,000
Total	$3,623,763,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate:	
Below Charleston, MO, Berm	$ 100,000
Powers Island, MO, Seepage	100,000
Carolina - Valewood, MS, Item 502-L	1,750,000
Stateline - Wilson Point, LA, Item 506-R	700,000
Plaquemines West 2nd Lift Levee Enlargement, Mile 66 to Mile 52.8-R	1,399,000
Marchand - Darrow, LA, Levee Enlargement, Mile 181 to Mile 175-L	600,000
Romeville - Remy, LA, Levee Enlargement, Mile 163 to Mile 150-L	2,800,000
Remy - Garyville, LA, Levee Enlargement, Mile 150 to Mile 142-L	1,100,000
Continue:	
Lands and Damages	360,000
Surveys and Layouts	200,000
Miscellaneous Relocations	23,000
Miscellaneous Hired Labor	131,000
Gammon, AR, Seepage Berm	1,050,000
Nash, MO, Relief Wells, Parcel 2	800,000
Nash, MO, Relief Wells, Parcel 3	800,000
Stateline - Wilson Point, LA, Item 503-R	1,600,000
Complete:	
Tiptonville, TN, Levee Extension	600,000
Stateline - Wilson Point, LA, Item 501-R	332,000
St. Joseph - Waterproof, LA, Item 379-R	1,500,000
Carolina - Valewood, MS, Item 501-LA	71,000
Carolina - Valewood, MS, Item 501-LB	52,000
Brusly - Plaquemine, LA, Levee Enlargement, Mile 225 to Mile 207-R	42,000
Point Pleasant - White Castle, LA, Levee Enlargement, Mile 197 to Mile 194-R	125,000
Oak Alley - Willow Grove, LA, Levee Enlargement, Mile 156 to Mile 143-R	322,000
Planning, Engineering and Design	5,992,000
Supervision and Administration	1,820,000
Total	$24,369,000

NON-FEDERAL COST: In accordance with the Flood Control Acts of 1928, 1936, 1938, 1941, 1946, 1950, 1954, 1962, 1965, 1968 and PL 92-222, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas.	$66,788,000	
Minor maintenance of all flood control works after their completion, except controlling and regulating spillway structures, including special relief levees; maintenance includes normally such matters as cutting grass, removal of weeds, local drainage and minor repairs to mainline river levees.		$1,025,000
Pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, repair, rehabilitation and replacement of recreation facilities.	1,690,000	141,900
Other (levee and revetment construction)	322,000	
Total Non-Federal Costs	$68,800,000	$1,166,900

STATUS OF LOCAL COOPERATION: It is estimated that local interests had spent approximately $292,000,000 for flood protection prior to the Act of 15 May 1928. After passage of the Act, the 37 levee districts along the Mississippi River adopted resolutions assuring the United States that the requirements of local cooperation will be met. These local interests have acquired all rights-of-way for work completed and underway and will try to provide the rights-of-way for work scheduled for Fiscal Year 1997. Some levee boards are having difficulty in providing rights-of-way when requested because of financial problems, even for construction work in areas where the existing levees are furtherest below the authorized grade. Supplemental assurances covering the requirements of the Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970 (PL 91-646) have been accepted for Main Stem Mississippi River Levees in Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee.

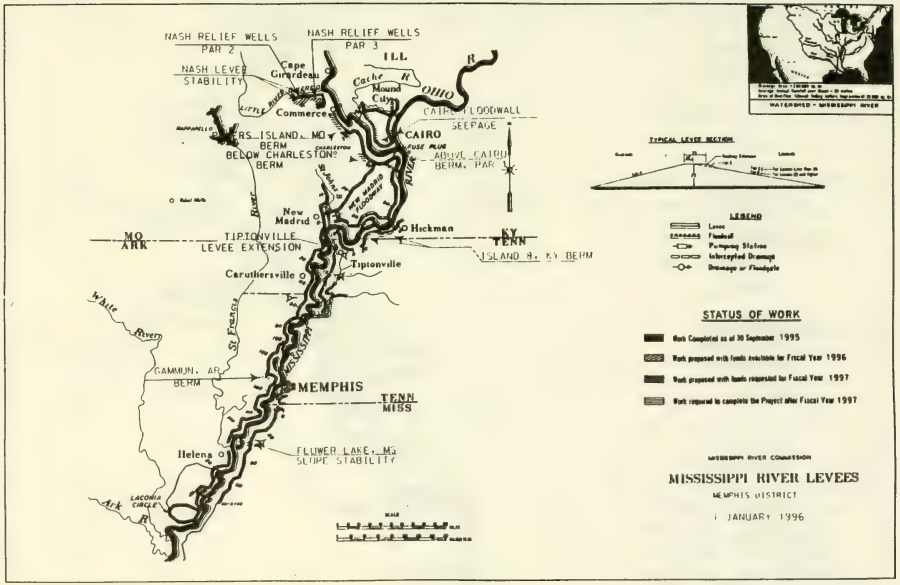
Assurances of local cooperation for the recreation facilities at Warfield Point, Mississippi, were accepted on 14 October 1969. Supplemental assurances covering the River and Harbor Act of 1970 (PL 91-611) and PL 91-646 were accepted 7 August 1972. Assurances have not as yet been requested for the recreation facilities at Mississippi River State Park, Arkansas.

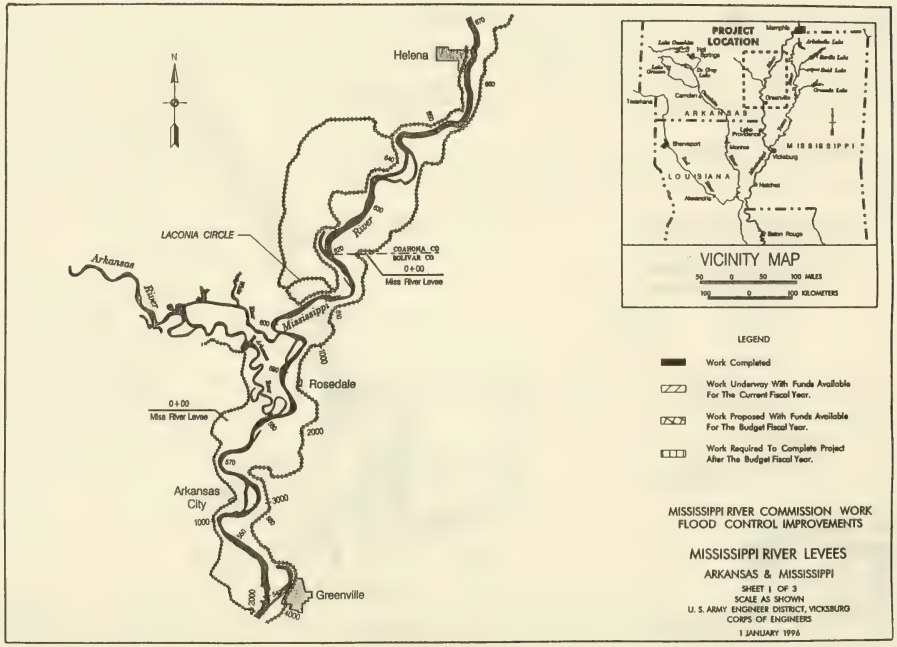
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $1,452,000,000 is an increase of $111,000,000 from the latest estimate ($1,341,000,000) presented to Congress (FY 1996). This change includes the following items:

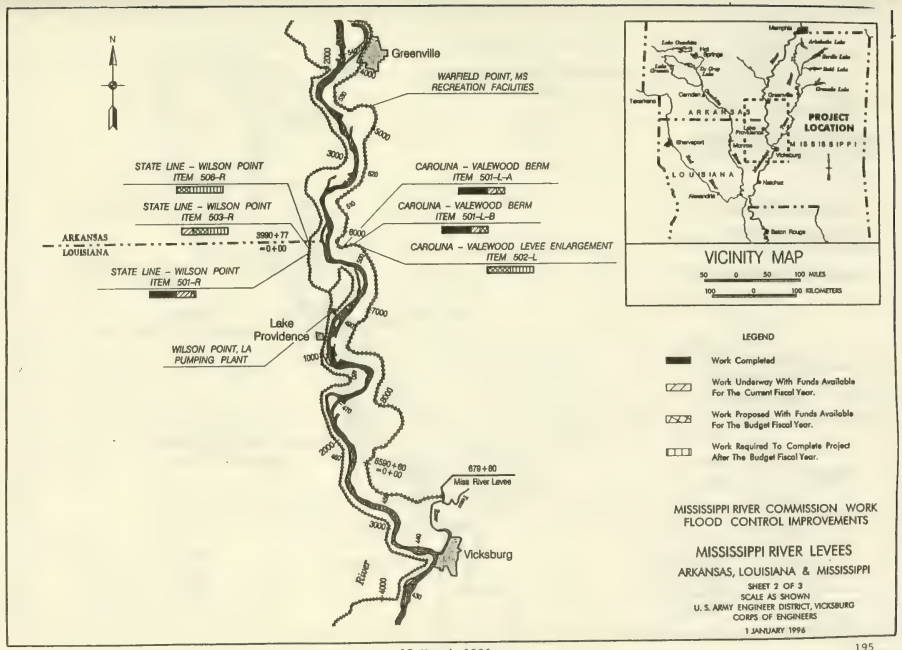
Item	Amount
Price Escalation on Construction Features	$115,272,000
Design changes	1,892,000
Post Contract Award and Other Estimating Adjustments	-5,970,000
Price Escalation on Real Estate	-3,194,000
Authorized Modifications	3,000,000
Total	$111,000,000

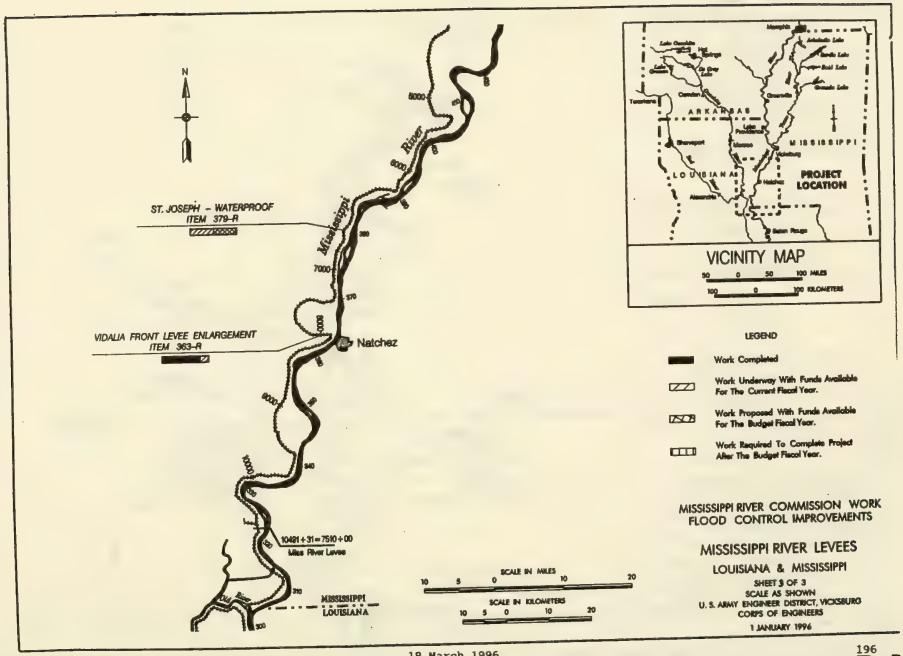
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with the Council on Environmental Quality on 16 April 1976.

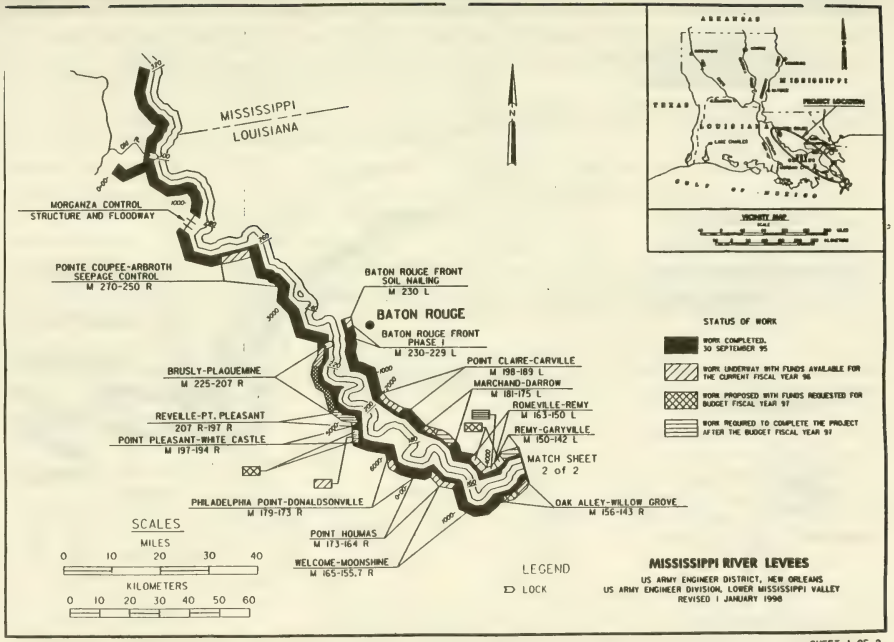
OTHER INFORMATION: Initial construction funds were appropriated in Fiscal Year 1928.


NASH RELIEF WELLS PAR 2
NASH RELIEF WELLS PAR 3
NASH LEVEE STABILITY
Cape Girardeau
ILL
Cache R
Mound City
OHIO
R
Commerce
CAIRO FLOODWALL SEEPAGE
CAIRO
FUSE PLUG
ABOVE CAIRO BERM, PAR 1
RS ISLAND, MO BERM
BELOW CHARLESTON BERM
CHARLESTON
New Madrid
NEW MADRID FLOODWAY
Hickman
MO ARK
TIPTONVILLE LEVEE EXTENSION
KY TENN
ISLAND 8, KY BERM
Tiptonville
Caruthersville
White River
St Francis
CAMMON, AR BERM
MEMPHIS
TENN MISS
Helena
FLOWER LAKE, MS SLOPE STABILITY
LACONIA CIRCLE
Ark R
MILES
WATERSHED - MISSISSIPPI RIVER
TYPICAL LEVEE SECTION
LEGEND
Levee
Floodwall
Pumping Stations
Intercepted Drainage
Drainage or Floodgate
STATUS OF WORK
Work Completed as of 30 September 1995
Work proposed with funds available for Fiscal Year 1996
Work proposed with funds requested for Fiscal Year 1997
Work required to complete the Project after Fiscal Year 1997
MISSISSIPPI RIVER COMMISSION
MISSISSIPPI RIVER LEVEES
MEMPHIS DISTRICT
1 JANUARY 1996


N
Helena
LACONIA CIRCLE
Arkansas
River
Mississippi
River
COAHOMA CO
BOLIVAR CO
0+00
Miss River Levee
Rosedale
0+00
Miss River Levee
Arkansas City
Greenville
PROJECT LOCATION
Memphis
Arkabutla Lake
Sardis Lake
Enid Lake
Grenada Lake
Lake Chicot
Lake Dardanelle
Hot Springs
Camden
Greenville
Texarkana
ARKANSAS
Lake Providence
Shreveport
Monroe
MISSISSIPPI
Vicksburg
LOUISIANA
Natchez
Alexandria
Baton Rouge
VICINITY MAP
50 0 50 100 MILES
100 0 100 KILOMETERS
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
MISSISSIPPI RIVER COMMISSION WORK
FLOOD CONTROL IMPROVEMENTS
MISSISSIPPI RIVER LEVEES
ARKANSAS & MISSISSIPPI
SHEET 1 OF 3
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996

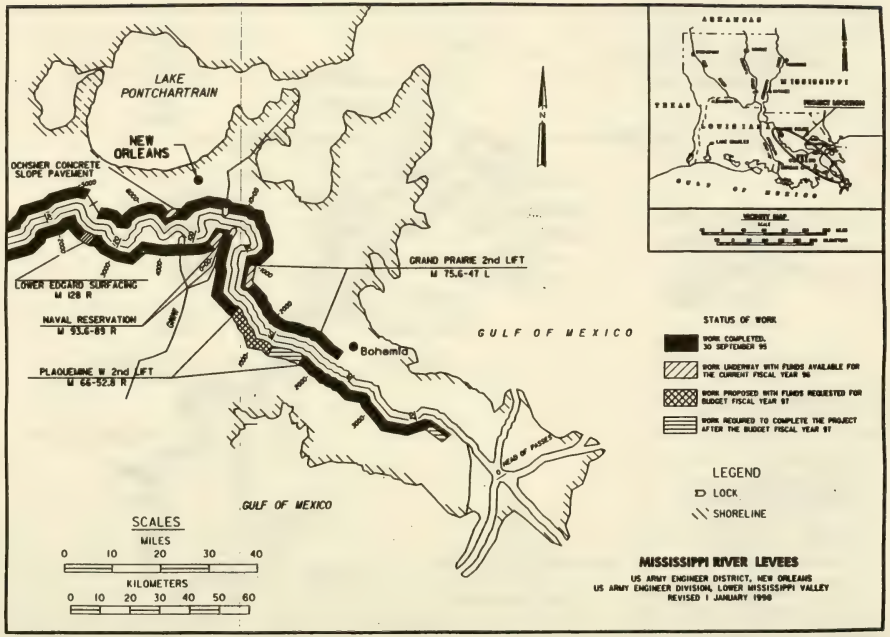

N
Greenville
WARFIELD POINT, MS
RECREATION FACILITIES
STATE LINE – WILSON POINT
ITEM 506–R
STATE LINE – WILSON POINT
ITEM 503–R
ARKANSAS
LOUISIANA
3990+77
=0+00
STATE LINE – WILSON POINT
ITEM 501–R
CAROLINA – VALEWOOD BERM
ITEM 501–L–A
CAROLINA – VALEWOOD BERM
ITEM 501–L–B
CAROLINA – VALEWOOD LEVEE ENLARGEMENT
ITEM 502–L
Lake
Providence
WILSON POINT, LA
PUMPING PLANT
8590+80
=0+00
678+80
Miss River Levees
Vicksburg
River
PROJECT
LOCATION
VICINITY MAP
50 0 50 100 MILES
100 0 100 KILOMETERS
LEGEND
Work Completed
Work Underway With Funds Available
For The Current Fiscal Year.
Work Proposed With Funds Available
For The Budget Fiscal Year.
Work Required To Complete Project
After The Budget Fiscal Year.
MISSISSIPPI RIVER COMMISSION WORK
FLOOD CONTROL IMPROVEMENTS
MISSISSIPPI RIVER LEVEES
ARKANSAS, LOUISIANA & MISSISSIPPI
SHEET 2 OF 3
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996


N
Mississippi River
ST. JOSEPH – WATERPROOF
ITEM 379-R
VIDALIA FRONT LEVEE ENLARGEMENT
ITEM 363-R
Natchez
10481+31=7510+00
Miss River Levee
MISSISSIPPI
LOUISIANA
SCALE IN MILES
SCALE IN KILOMETERS
VICINITY MAP
PROJECT LOCATION
ARKANSAS
MISSISSIPPI
LOUISIANA
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
MISSISSIPPI RIVER COMMISSION WORK
FLOOD CONTROL IMPROVEMENTS
MISSISSIPPI RIVER LEVEES
LOUISIANA & MISSISSIPPI
SHEET 3 OF 3
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996



18 March 1996

SHEET 1 OF 2


LAKE PONTCHARTRAIN
NEW ORLEANS
OCHSNER CONCRETE SLOPE PAVEMENT
LOWER EDGARD SURFACING M 129 R
NAVAL RESERVATION M 93.6-89 R
PLAQUEMINE W 2nd LIFT M 66-52.8 R
GRAND PRAIRIE 2nd LIFT M 75.6-47 L
Bohemia
GULF OF MEXICO
GULF OF MEXICO
HEAD OF PASSES
N
SCALES
MILES
0 10 20 30 40
KILOMETERS
0 10 20 30 40 50 60
ARKANSAS
MISSISSIPPI
TEXAS
LOUISIANA
LAKE CHARLES
BATON ROUGE
NEW ORLEANS
GULF OF MEXICO
VICINITY MAP
STATUS OF WORK
WORK COMPLETED, 30 SEPTEMBER 95
WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR 96
WORK PROPOSED WITH FUNDS REQUESTED FOR BUDGET FISCAL YEAR 97
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR 97
LEGEND
LOCK
SHORELINE
MISSISSIPPI RIVER LEVEES
US ARMY ENGINEER DISTRICT, NEW ORLEANS
US ARMY ENGINEER DIVISION, LOWER MISSISSIPPI VALLEY
REVISED 1 JANUARY 1996

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO and TN - Construction

PROJECT: Channel Improvement, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri and Tennessee (Continuing)

LOCATION: The project is located in the Mississippi River and along its banks from the vicinity of Cairo, Illinois, to the Head of Passes, Louisiana, a distance of approximately 966 miles.

DESCRIPTION: The plan of improvement consists of stabilizing the banks of the river in a desirable alignment and obtaining the most efficient flow characteristics for it for flood control and navigation by means of revetments, dikes, foreshore protection, and improvement dredging. All work is programmed.

AUTHORIZATION: Flood Control Acts of 1928, 1936, 1938, 1941, 1944, 1962, 1965, 1966, and 1970.

REMAINING BENEFIT-REMAINING COST RATIO: 34.4 to 1 at 2-1/2 percent. The benefit-cost ratio is based on all features which comprise the Main Stem system of the Mississippi River and Tributaries project.

TOTAL BENEFIT-COST RATIO: 7.9 to 1 at 2-1/2 percent.

INITIAL BENEFIT-COST RATIO: This project feature of the Main Stem system was authorized in Fiscal Year 1928 and initial construction funds were provided in Fiscal Year 1928. The authorized comprehensive review of the Mississippi River and Tributaries project, contained in House Document 308/88/2, as updated to reflect 1965 conditions and price levels, is considered to be the base estimate for the Main Stem system. The benefit-cost ratio for the Main Stem components computed for the base estimate was 7.9 to 1.

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in October 1979 at 1979 price levels. The latest comprehensive analysis was conducted in 1974. The 1979 analysis is the same as the 1974 analysis except that certain undocumented benefit categories were eliminated and 1979 prices were used.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS: (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$3,570,000,000		Entire Project	91	Being Determined
Estimated Non-Federal Cost		1,796,000				
Cash Contributions	$1,696,000					
Other Costs	100,000					
Total Estimated Project Cost		$3,571,796,000				

			PHYSICAL DATA	
Allocations to 30 September 1995	$2,350,821,000		Lands and Damages	19,135 acres
Conference Allowance for FY 1996	61,000,000		Revetments	1,085 miles
Allocation for FY 1996	48,136,000[1]		Dikes	339 miles
Allocations through FY 1996	2,398,957,000	67	Dredging	As required
			Foreshore Protection	160 miles
Allocation Requested for FY 1997	50,800,000	69	Pumping Station	1
Programmed Balance to Complete After FY 1997	1,120,243,000			
Unprogrammed Balance to Complete After FY 1997	0			

JUSTIFICATION: The Channel Improvement Project is one of the Main Stem components which comprise the plan of improvement for the control of floods on the Mississippi River. The contribution of each element to the overall plan is inseparably related to that made by the others. Therefore, their benefits are inseparable and a composite benefit-cost ratio for the Main Stem components is necessary. The components are: Mississippi River Levees, Channel Improvement, South Bank Arkansas and South Bank Red River Levees, the Atchafalaya Basin, Atchafalaya Floodway System, Old River, and a few miscellaneous items.

[1] Reflects $6,896,000 reduction assigned as savings and slippage and $5,968,000 reprogrammed from the project.

The Mississippi River, with a drainage area of about 1,245,000 square miles, has a wide range of flow, increasing from an approximate minimum of 90,000 cubic feet per second (675,000 gallons per second) to a maximum of 2,345,000 cubic feet per second (17,587,000 gallons per second) which occurred in 1927 at the latitude of Red River Landing. The project flood is 3,030,000 cubic feet per second (22,500,000 gallons per second). Part of the tremendous energy of this volume of flowing water is directed toward a relentless attack on the banks of the river, causing the unprotected banks to cave into the river. As this caving progresses, the attack becomes more direct, the bendway moves in toward the levee, and more sediment is placed in the river and deposited downstream in the form of a sandbar. This bar gradually builds out into the channel and deflects the river's attack to the opposite bank. As the cycle is repeated the river tends to meander and lengthen. Revetment is placed against the banks of the river at locations where mainline levees are being threatened with destruction or where unsatisfactory alignment and channel conditions are developing. Revetment serves a three-fold purpose in that the river is prevented from encroaching on the Main Stem levees, excess material is kept out of the stream, and a favorable channel alignment and depth are maintained. An objective of the plan is to preserve favorable alignments and efficient cross-sectional areas and to prevent the river from creating new meander patterns. In wide reaches of the river, dikes are used to contract the channel width so as to produce a single efficient channel for navigation and to insure the flood carrying capacity of the river. Chutes and secondary channels are closed for the same purpose. Improvement dredging is employed to assist the river in removing natural obstructions which deflect the current into undesirable patterns of flow and to assist in developing an efficient channel. Foreshore protection is utilized to preserve the integrity of the Mississippi River Levees from attack by erosion of the batture. Erosion of the batture leads to steep slopes which, when undermined, result in considerable loss of batture and possible failure of the levee.

The value of lands and improvements protected by the Main Stem System authorized works against the design flood is $124.9 billion in 1995 dollars. This consists of 226,000 residential acres which include the City of New Orleans, 45,000 acres of commercial lands, 10 million acres of agricultural lands, and 6.5 million acres of woodland and marshland. The area subject to flooding by project flood assuming no protective works is 22.7 million acres. The area that will be provided complete protection by the completed project is 15.1 million acres.

The maximum flood of record was the 1927 flood which overflowed about 26,000 square miles, caused the deaths of 214 people, rendered 637,000 people temporarily homeless, and caused property damages of $347.0 million. This would be equivalent to $9.3 billion in damages in 1995 prices.

The next flood of magnitude was the 1973 flood which overflowed 16,875 square miles (10.8 million acres), caused the death of 28 people, and displaced approximately 45,300 persons. The deaths and displacements of persons would have been significantly higher without the project in place. Without Federal projects, approximately 19.8 million acres would have been inundated. Total damages with existing projects in operation were $643 million (1973 price levels). Damages without projects would have been $11.3 billion and total damages prevented by projects amounted to $10.6 billion. Expressed in 1995 prices, damages without the projects would have been $37.9 billion and damages prevented would have been $33.7 billion.

The benefit-cost ratio was derived by measuring the total benefits credited to those Main Stem components against their total cost. Average annual benefits for the composite of Main Stem features are as follows:

Annual Benefits	Amount
Flood Control	$2,734,073,000
Navigation	878,281,000
Area Redevelopment	9,035,000
Recreation	2,374,000
Total	$3,623,763,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Revetments	$ 31,815,000
Dikes	18,985,000
Total	$ 50,800,000

Revetments: The planned program consists of items of work for which funds will be required as follows:

Lands and Damages	$ 145,000
Construction of Revetments	24,561,000
Cultural Resources	50,000
Planning, Engineering, and Design	5,694,000
Supervision and Administration	1,365,000
Total	$ 31,815,000

The items of revetment work are:

	Approximate length in feet:
Merriwether-Cherokee, TN	1,260
Heloise, TN	2,200
Island 67, MS	1,800
Linda, MO	1,500
Beckwith Bend, MO	2,500
Lake Concordia, MS	2,000
Baleshed-Stack Island, MS-LA	1,100
Milliken Bend, LA	1,000
Fitler-Cottonwood, MS	2,000
Diamond, MS	1,300
Carr Point, LA	1,000
Grand Bay, LA	3,000
Oak Point, LA	2,000
Reinforcement	15,300

Dikes: The planned dike work consists of the following items:

Below Walnut Bend, AR	$ 400,000
Walnut Bend, AR	2,500,000
Shelby Forest, TN	250,000
Randolph Point, TN	275,000
Seyppel, AR	500,000
Below Williams, KY	750,000
Pickett, MS	1,550,000
Moore Island, MO	750,000
Anconia Chute, AR	1,000,000
Baleshed Landing, MS	850,000
Ajax Bar, MS	850,000
Forest Home, LA	1,100,000
Below Racetrack, MS	1,100,000
Opposite Rifle Point, MS	800,000
Rifle Point, LA	600,000
Opposite Esperance Point, MS	830,000
Esperance Point, LA	800,000
Fritz Island, LA	320,000
Surveys and Layouts	50,000
Lands and Damages	69,000
Cultural Resources	50,000
Planning, Engineering, and Design	2,374,000
Supervision and Administration	1,217,000
Total	$18,985,000

NON-FEDERAL COST: In accordance with Section 4 of the Flood Control Act of 1944, as amended by Section 207 of the Flood Control Act of 1962, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas	$ 100,000	
Pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, and replacement of recreation facilities	1,696,000	$156,000
Total Non-Federal Costs	$1,796,000	$156,000

STATUS OF LOCAL COOPERATION: Assurances furnished by the Missouri Department of Conservation for the Dorena Recreation Facility were accepted 27 August 1971; assurances furnished by the Tennessee Department of Conservation for the Richardson Landing Recreation Facility were accepted 3 September 1976, and assurances furnished by the City of Memphis, Tennessee, for Volunteer Bicentennial Park were accepted 11 September 1975. Assurances furnished by the City of Osceola, Arkansas, for Lake Neark, Arkansas, are embodied in the contract for cost sharing approved on 19 September 1982. A Local Cooperation Agreement for the Ed Jones Boat Ramp with the State of Tennessee was signed 27 October 1988. A Local Cooperation Agreement for the Shelby Forest Boat Ramp with the State of Tennessee was signed 11 October 1990. A Local Cooperation Agreement for the Dyersburg, Tennessee, Boat Ramp with the State of Tennessee was signed 11 July 1994.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $3,570,000,000 is the same as the latest estimate ($3,570,000,000) presented to Congress (FY 1996). However, the estimate includes changes to the following items:

Item	Amount
Price Escalation on Construction Features	$-510,000
Post Contract Award and Other Estimating Adjustments	- 95,000
Price Escalation on Real Estate	+605,000
Total	$ 0

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with the Council on Environmental Quality on 16 April 1976.

OTHER INFORMATION: Initial construction funds were appropriated in Fiscal Year 1928.

Scale of Miles

Scale of Kilometers

Revetment

Dikes

Dredging

1962 Mileage, AHP

Recreation Facility

STATUS OF WORK

Work completed as of 30 September 1995

Work proposed with funds available for Fiscal Year 1996

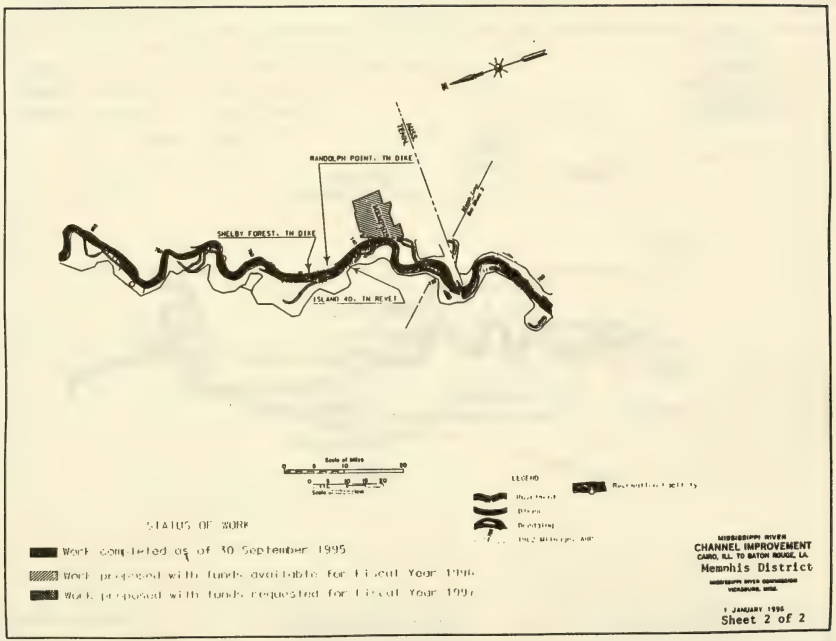
Work proposed with funds requested for Fiscal Year 1997

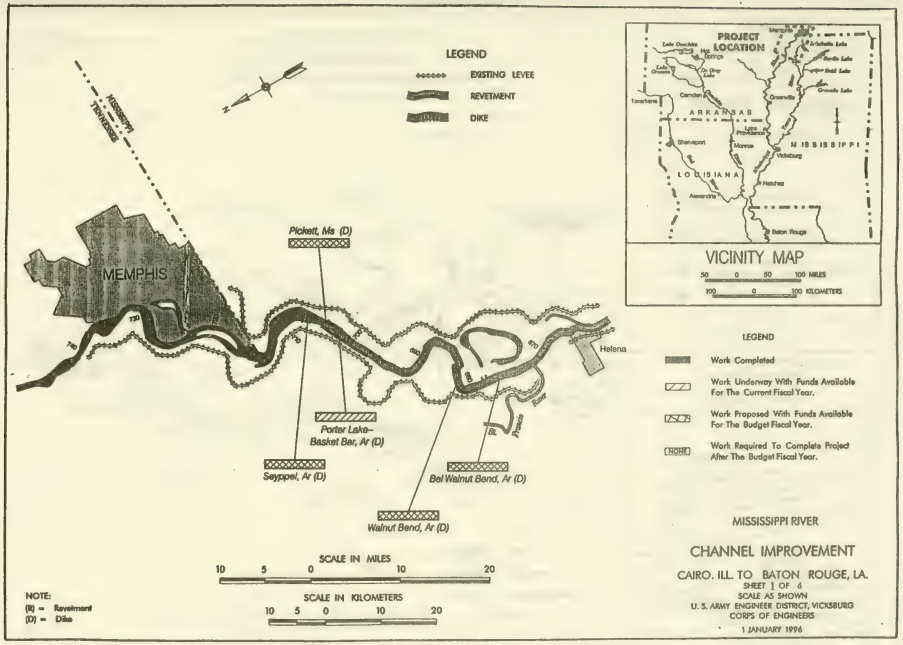
MISSISSIPPI RIVER
CHANNEL IMPROVEMENT
CAIRO, ILL. TO BATON ROUGE, LA.
Memphis District

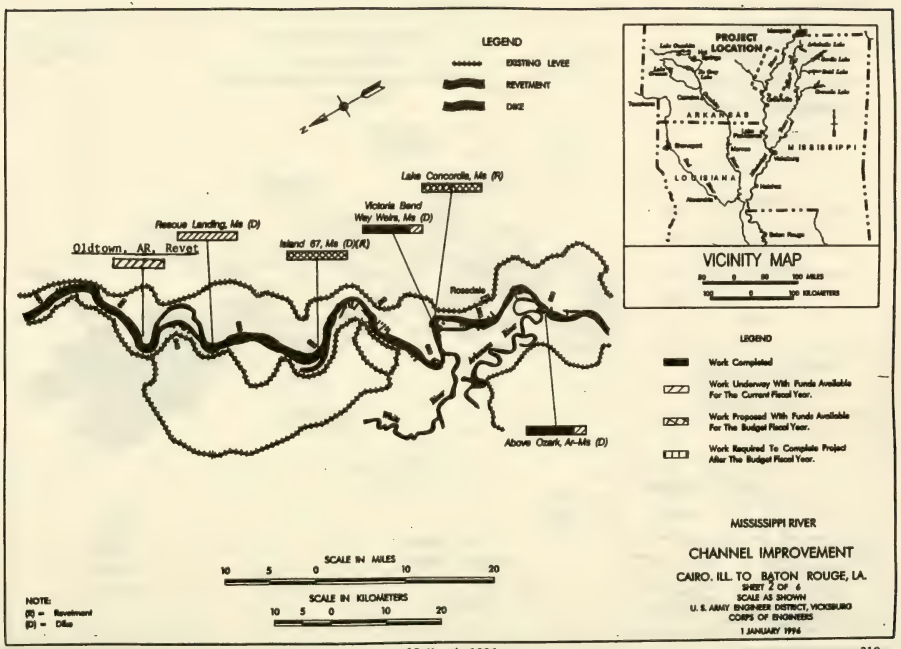
MISSISSIPPI RIVER COMMISSION
VICKSBURG, MISS.

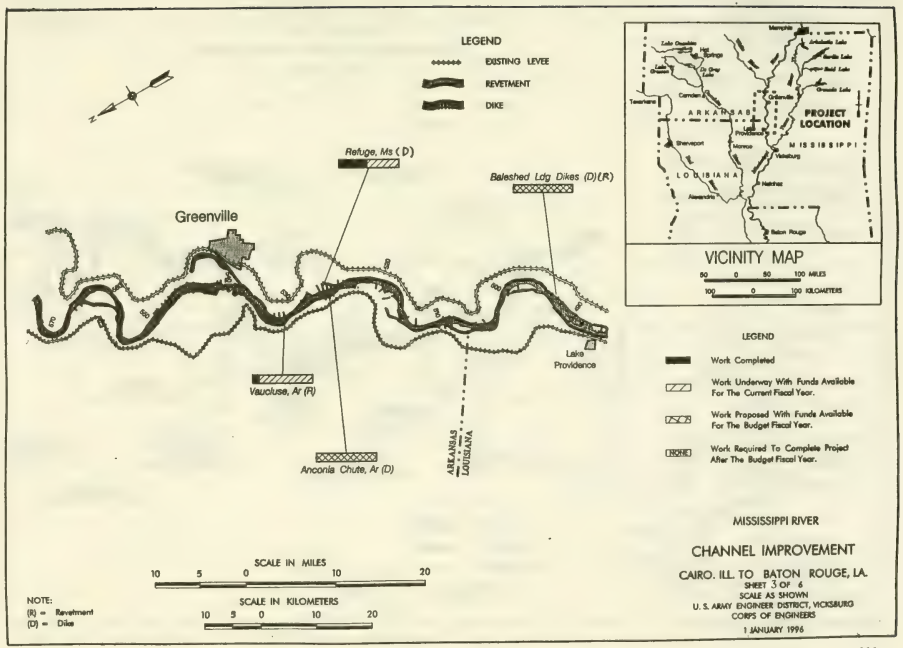
1 JANUARY 1996

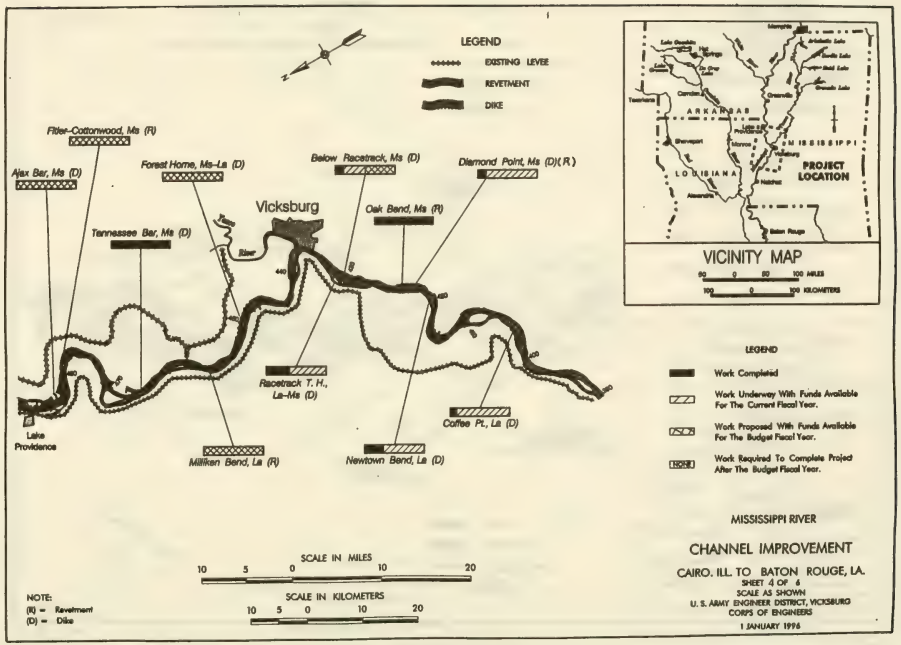
Sheet 1 of 2

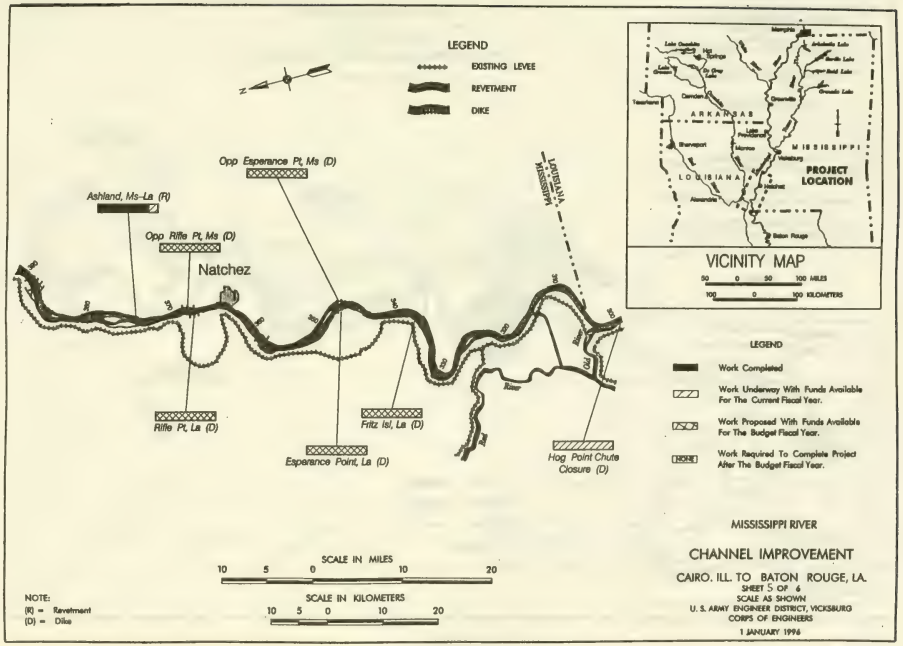

RANDOLPH POINT, TN DIKE
SHELBY FOREST, TN DIKE
ISLAND 40, TN REVET
Scale of Miles
LEGEND
STATUS OF WORK
Work completed as of 30 September 1995
Work proposed with funds available for Fiscal Year 1996
Work proposed with funds requested for Fiscal Year 1997
MISSISSIPPI RIVER
CHANNEL IMPROVEMENT
CAIRO, ILL. TO BATON ROUGE, LA.
Memphis District
1 JANUARY 1995
Sheet 2 of 2

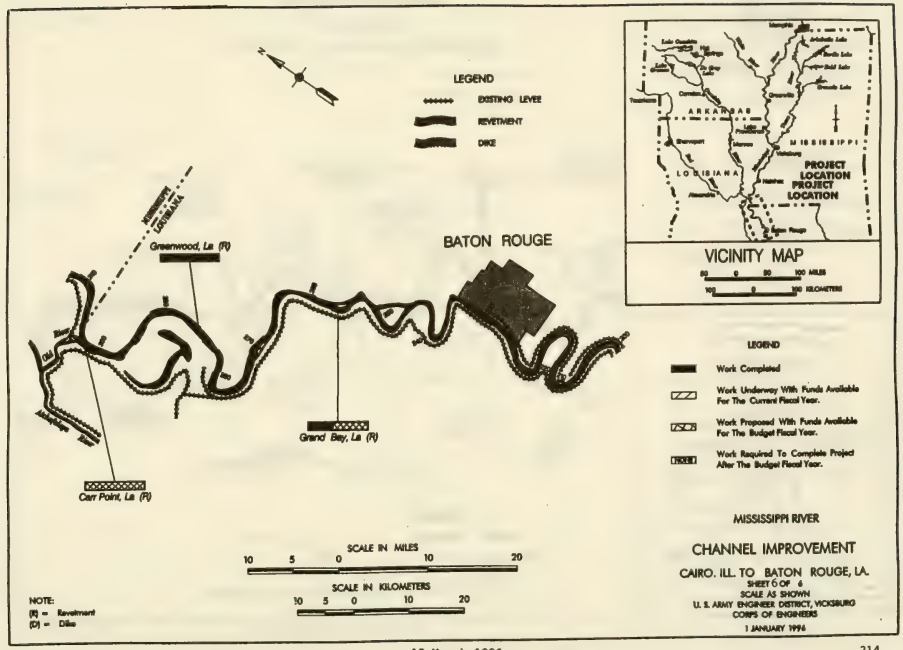

LEGEND
EXISTING LEVEE
REVETMENT
DIKE
MISSISSIPPI
TENNESSEE
MEMPHIS
Pickett, Ms (D)
Porter Lake–
Basket Bar, Ar (D)
Seyppel, Ar (D)
Bel Walnut Bend, Ar (D)
Walnut Bend, Ar (D)
Helena
Arkansas River
SCALE IN MILES
10 5 0 10 20
SCALE IN KILOMETERS
10 5 0 10 20
NOTE:
(R) = Revetment
(D) = Dike
PROJECT LOCATION
Lake Ouachita
Lake Greeson
Mc Clellan
Dardanelle Lake
Ozark Lake
Nimrod Lake
Blue Mt. Lake
Ouachita Lake
Texarkana
Camden
Greenville
ARKANSAS
Lake Providence
Shreveport
Monroe
Vicksburg
MISSISSIPPI
LOUISIANA
Natchez
Alexandria
Baton Rouge
VICINITY MAP
50 0 50 100 MILES
100 0 100 KILOMETERS
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
MISSISSIPPI RIVER
CHANNEL IMPROVEMENT
CAIRO, ILL. TO BATON ROUGE, LA.
SHEET 1 OF 6
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996

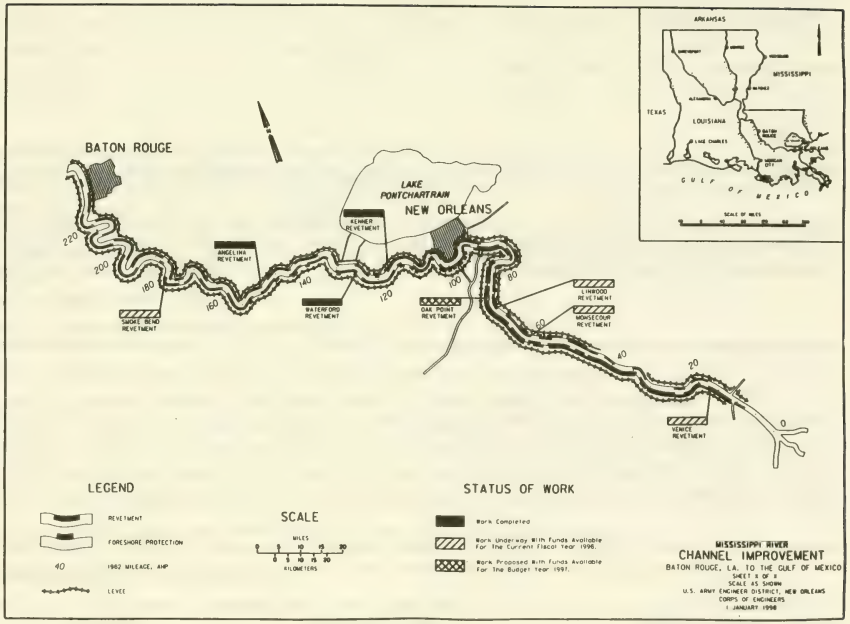

LEGEND
EXISTING LEVEE
REVETMENT
DIKE
Lake Concordia, Ms (R)
Victoria Bend Way Weirs, Ms (D)
Rescue Landing, Ms (D)
Oldtown, AR, Revet
Island 67, Ms (D)(R)
Roosevelt
Above Ozark, Ar-Ms (D)
PROJECT LOCATION
ARKANSAS
MISSISSIPPI
LOUISIANA
VICINITY MAP
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
MISSISSIPPI RIVER
CHANNEL IMPROVEMENT
CAIRO, ILL. TO BATON ROUGE, LA.
SHEET 2 OF 6
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996
SCALE IN MILES
10 5 0 10 20
SCALE IN KILOMETERS
10 5 0 10 20
NOTE:
(R) = Revetment
(D) = Dike


LEGEND
EXISTING LEVEE
REVETMENT
DIKE
Refuge, Ms (D)
Baleshed Ldg Dikes (D)(R)
Greenville
Vaucluse, Ar (R)
Anconia Chute, Ar (D)
ARKANSAS
LOUISIANA
Lake Providence
SCALE IN MILES
10 5 0 10 20
SCALE IN KILOMETERS
10 5 0 10 20
NOTE:
(R) = Revetment
(D) = Dike
Memphis
Lake Ouachita
Hot Springs
Lake Greeson
Ouachita Lake
Bartlett Lake
Sardis Lake
Grenada Lake
Texarkana
Camden
Greenville
ARKANSAS
PROJECT LOCATION
Little Rock
Pine Bluff
Shreveport
Monroe
Vicksburg
MISSISSIPPI
LOUISIANA
Natchez
Alexandria
Baton Rouge
VICINITY MAP
50 0 50 100 MILES
100 0 100 KILOMETERS
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
MISSISSIPPI RIVER
CHANNEL IMPROVEMENT
CAIRO, ILL. TO BATON ROUGE, LA.
SHEET 3 OF 6
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996


LEGEND
EXISTING LEVEE
REVETMENT
DIKE
Fitler-Cottonwood, Ms (R)
Alex Bar, Ms (D)
Forest Home, Ms-La (D)
Below Racetrack, Ms (D)
Diamond Point, Ms (D)(R)
Vicksburg
Oak Bend, Ms (R)
Tennessee Bar, Ms (D)
River
Racetrack T. H., La-Ms (D)
Coffee Pt., La (D)
Lake Providence
Milliken Bend, La (R)
Newtown Bend, La (D)
SCALE IN MILES
10 5 0 10 20
SCALE IN KILOMETERS
10 5 0 10 20
NOTE:
(R) = Revetment
(D) = Dike
Memphis
Arkansas
Tennessee
Greenville
Vicksburg
Shreveport
Monroe
Natchez
Alexandria
Baton Rouge
PROJECT LOCATION
VICINITY MAP
50 0 50 100 MILES
100 0 100 KILOMETERS
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
MISSISSIPPI RIVER
CHANNEL IMPROVEMENT
CAIRO, ILL. TO BATON ROUGE, LA.
SHEET 4 OF 6
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996


LEGEND
EXISTING LEVEE
REVETMENT
DIKE
Opp Esperance Pt, Ms (D)
Ashland, Ms-La (R)
Opp Riffe Pt, Ms (D)
Natchez
Riffe Pt, La (D)
Esperance Point, La (D)
Fritz Isl, La (D)
Hog Point Chute Closure (D)
LOUISIANA
MISSISSIPPI
SCALE IN MILES
10 5 0 10 20
SCALE IN KILOMETERS
10 5 0 10 20
NOTE:
(R) = Revetment
(D) = Dike
Memphis
Arkansas
Mississippi
Louisiana
Shreveport
Monroe
Vicksburg
Natchez
Alexandria
Baton Rouge
PROJECT LOCATION
VICINITY MAP
50 0 50 100 MILES
100 0 100 KILOMETERS
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
MISSISSIPPI RIVER
CHANNEL IMPROVEMENT
CAIRO, ILL. TO BATON ROUGE, LA.
SHEET 5 OF 6
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996


LEGEND
EXISTING LEVEE
REVETMENT
DIKE
BATON ROUGE
Greenwood, La (R)
Grand Bay, La (R)
Carr Point, La (R)
MISSISSIPPI
LOUISIANA
VICINITY MAP
PROJECT LOCATION
PROJECT LOCATION
ARKANSAS
MISSISSIPPI
LOUISIANA
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
SCALE IN MILES
10 5 0 10 20
SCALE IN KILOMETERS
10 5 0 10 20
NOTE:
(R) = Revetment
(D) = Dike
MISSISSIPPI RIVER
CHANNEL IMPROVEMENT
CAIRO, ILL. TO BATON ROUGE, LA.
SHEET 6 OF 6
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1994


BATON ROUGE
LAKE PONTCHARTRAIN
NEW ORLEANS
SHORT BEND REVETMENT
ANGELINA REVETMENT
BATEMFORD REVETMENT
REMMER REVETMENT
OAK POINT REVETMENT
LINWOOD REVETMENT
MONSECOUR REVETMENT
VENICE REVETMENT
220
200
180
160
140
120
100
80
60
40
20
0
ARKANSAS
MISSISSIPPI
TEXAS
LOUISIANA
LAKE CHARLES
BATON ROUGE
NEW ORLEANS
GULF OF MEXICO
SCALE OF MILES
LEGEND
REVETMENT
FORESHORE PROTECTION
40
1982 MILEAGE, AHP
LEVEE
SCALE
MILES
0 5 10 15 20
0 5 10 15 20
KILOMETERS
STATUS OF WORK
Work Completed
Work Underway With Funds Available For The Current Fiscal Year 1996.
Work Proposed With Funds Available For The Budget Year 1997.
MISSISSIPPI RIVER
CHANNEL IMPROVEMENT
BATON ROUGE, LA. TO THE GULF OF MEXICO
SHEET 5 OF 8
SCALE AS SHOWN
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
1 JANUARY 1998

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN - Construction

PROJECT: Atchafalaya Basin, Louisiana (Continuing)

LOCATION: The project is located in south-central Louisiana below the latitude of Old River and west of and generally paralleling the Mississippi River. The Atchafalaya River flows through the middle of the basin.

DESCRIPTION: The plan of improvement consists of a leveed floodway about 15 miles wide and 110 miles long that extends generally from the latitude of Old River to the Gulf of Mexico. The upper half of the basin is divided by the leveed Atchafalaya River. The Morganza Floodway is to the east of the Atchafalaya River and has a capacity of 600,000 cubic feet per second, which is introduced into the floodway by a gated control structure. The West Atchafalaya Floodway, which is located to the west of the river, is placed into operation when the fuse plug sections are overtopped bringing flows from the river that will introduce 900,000 cubic feet per second into the lower basin. After passing through the floodways, the flood waters enter the Gulf of Mexico through the Lower Atchafalaya River at Morgan City and the Wax Lake Outlet channel constructed west of Patterson, Louisiana. The project is part of a system and all work is programmed.

AUTHORIZATION: Flood Control Acts of 1928, 1934, 1936, 1938, 1941, 1946, 1950, and 1954.

REMAINING BENEFIT-REMAINING COST RATIO: 34.4 at 2-1/2 percent. The ratio is based on all features which comprise the Main Stem System of the Mississippi River and Tributaries project.

TOTAL BENEFIT-COST RATIO: 7.9 at 2-1/2 percent.

INITIAL BENEFIT-COST RATIO: This project feature of the Main Stem system was authorized in Fiscal Year 1928 and initial construction funds were provided in Fiscal Year 1928. The authorized comprehensive review of the Mississippi River and Tributaries project, contained in House Document 308/88/2, as updated to reflect 1965 conditions and price levels, is considered to be the base estimate for the Main Stem system. The benefit-to-cost ratio for the Main Stem components computed for the base estimate was 7.9 to 1 (Fiscal Year 1928).

BASIS OF BENEFIT-COST RATIO: Benefits are from latest available evaluation approved in October 1979 at 1979 price levels. The latest comprehensive analysis was conducted in 1974. The 1979 analysis is the same as the 1974 analysis except that certain undocumented benefit categories were eliminated and 1979 price levels were used.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS: (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$1,650,000,000		Entire Project	91	Being Determined
Estimated Non-Federal Cost		8,000,000				
Cash Contributions	0					
Other Costs	8,000,000					
Total Estimated Project Cost		$1,658,000,000				
Allocations to 30 September 1995		759,842,000				
Conference Allowance for FY 1996		27,000,000				
Allocation for FY 1996		21,948,000[1]				
Allocations through FY 1996		781,790,000	47			
Allocation Requested for FY 1997		18,600,000	49			
Programmed Balance to Complete after FY 1997		849,610,000				
Unprogrammed Balance to Complete after FY 1997		0				

[1] FY 1996 allocation reflects reduction of $3,052,000 assigned as savings and slippage and $2,000,000 reprogrammed from the project.

PHYSICAL DATA

Levees:
  Average Height - 20 feet
Length - 449 miles
Relocations:
  Roads - 15 miles
  Railroads - 20 miles
Drainage Structures:

Pointe Coupee	2 gates, 10.5 by 15 feet
Melville	2 - 72-inch corrugated metal pipe with vertical lift gate
Darbonne	10-foot by 10-foot barrel with vertical lift gate
Bayou des Glaises	72-inch corrugated metal pipe with flap gate
Bayou Courtableau	2 weirs, 503 feet long
Brushy Bayou	5-foot by 6-foot barrel with vertical lift gate
Bayou Courtableau	5-barrel, each 10 feet by 15 feet with vertical lift gate
Wax Lake East	25 pipes, 5 feet in diameter with slide gates
Wax Lake West	15 pipes, 5 feet in diameter with slide gates

Lands and Damages:
  289,212 acres

Pumping Stations:
  Number - 11
  Capacity - Minimum - 50 cubic feet per second
    Maximum - 1,500 cubic feet per second
    Average - 400 cubic feet per second
Bank Stabilization:
Length - 58 miles
Floodgates:
  Charenton - Sector-gated, 45 feet wide
  East Calumet - Sector-gated, 45 feet wide
  West Calumet - Sector-gated, 45 feet wide
Channels:
  Length: 147.1 miles
Locks:
  Bayou Boeuf, 75 feet by 1,156 feet, earth chamber
  Bayou Sorrel, 56 feet by 797 feet, earth chamber
  Berwick, 45 feet by 300 feet, concrete chamber
Atchafalaya River Navigation:
  New Channel 10.1 miles
Freshwater Control Structure:
  Sherburne - dual 10-foot by 10-foot reinforced concrete box culverts with gates
  Henderson - dual 10-foot by 10-foot reinforced concrete box culverts with gates

JUSTIFICATION: The Mississippi River below Morganza Floodway is capable of carrying 1,500,000 cubic feet per second without threatening the integrity of the levees along its banks which protect densely populated areas, highly developed agricultural lands, industries, and the city of New Orleans, as well as a number of lesser populated communities. Studies indicate that the project flood against which the flood control protection works are designed will be of such magnitude that 3,030,000 cubic feet per second will pass the latitude of Old River. Since the Mississippi River below the Morganza Floodway can carry only one-half this amount, the other one-half must be diverted from the main channel. The diversion is made through the Old River Control Structure, the Old River Auxiliary Structure, and the Atchafalaya River, and through the Morganza and West Atchafalaya Floodways. In order to prevent diverted waters from spreading over the rich and highly developed agricultural lands outside of the Atchafalaya Basin, these rivers and floodways have been leveed to confine the diverted flow. In order to eliminate unnecessary damage, it is essential that the work proceed as vigorously and as expeditiously as possible. This floodway system is, for all practical purposes, a part of the main river system, in as much as the integrity of the main river system depends upon its utilization. Since this construction began, farms and industries have developed in the areas adjacent to the floodway with full confidence that they would receive protection. Therefore, overtopping or crevassing of the levees would cause far more damage than anticipated at the start of project construction.

The main protection levees in the lower reaches are deficient because of consolidation of the soft underlying soils, especially those below the latitude of Krotz Springs. Early construction of these levees to the approved grade is essential, not only for flood protection, but as a means of access for the movement of manpower and equipment to any spot threatened by floods.

The Atchafalaya Basin project, authorized in 1928, is one of the Main Stem components which comprise the plan of improvement for the control of floods on the Mississippi River. The contribution of each element to the overall plan is inseparably related to that made by the others. Therefore, their benefits are inseparable and a composite benefit to cost ratio for the Main Stem components is necessary. The components are: Mississippi River Levees, Channel Improvement, South Bank Arkansas and South Bank Red River Levees, the Atchafalaya Basin, the Atchafalaya Basin Floodway System, Old River, and a few miscellaneous items.

The value of lands and improvements protected by authorized works of the Main Stem System against the design flood is $124.9 billion in 1995 dollars. This consists of 226,000 residential acres which include the City of New Orleans, 45,000 acres of commercial lands, 10 million acres of agricultural lands, and 6.5 million acres of woodland and marshland. The area subject to flooding by project flood assuming no protective works is 22.7 million acres. The area that will be provided complete protection by the completed project is 15.1 million acres.

The maximum flood of record for the Main Stem System, was the 1927 flood which overflowed about 26,000 square miles, caused the deaths of 214 people, rendered 637,000 people temporarily homeless, and caused property damages of $347.0 million. This would be equivalent to $9.3 billion damages in 1995 prices.

The next flood of magnitude was the 1973 flood which overflowed 16,875 square miles (10.8 million acres), caused the death of 28 people, and displaced approximately 45,300 persons. The deaths and displacements of persons would have been significantly higher without the project in place. Without Federal projects, approximately 19.8 million acres would have been inundated. Total damages with existing projects in operation were $643 million (1973 price levels). Damages without projects would have been $11.3 billion and total damages prevented by projects amount to $10.6 billion. Expressed in 1995 prices, damages without the projects would have been $37.9 billion and damages prevented would have been $33.7 billion.

The benefit-to-cost ratio was derived by measuring the total benefits credited to those Main Stem components against their total cost. Average annual benefits for the composite of Main Stem features are as follows:

Annual Benefits	Amount
Flood Control	$2,734,073,000
Navigation	878,281,000
Redevelopment	9,035,000
Recreation	2,374,000
Total Annual Benefits	$3,623,763,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate:	
Wax Lake West Levee "B" Levee Enlargement	$1,080,000
Initiate and Complete:	
Happy Town Revetment	5,212,000
Melville Revetment	595,000
Teche Ridge Centerville Levee Enlargement	773,000
E-96/E-99 Erosion Protection Phase I	500,000
Continue:	
Stone Bank Paving	616,000
Lands and Damages	500,000
Surveys and Layouts	100,000
Cultural Resource Preservation	15,000
Planning, Engineering & Design	7,776,000
Supervision and Administration	1,433,000
Total	$18,600,000

NON-FEDERAL COST: In accordance with the Flood Control Act of 15 May 1928, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Bear the administrative costs for furnishing rights-of-way for levee and levee drainage construction; purchase maintenance equipment; and perform miscellaneous levee work.	$1,110,000	0
Agree to accept lands turned over to them under the provision of Section 4 of the Flood Control Act of 15 May 1928, and as provided in the Flood Control Act of 18 August 1941.	0	0
Bear costs for and maintain all flood control works after their completion, except controlling and regulating spillway structures, including special levees; maintenance includes normally such matters as cutting grass, removal of weeds, local drainage and minor repairs to the levees.	0	$3,700,000
For the Upper Point Coupee Loop Area, provide an interior drainage system and comply with the applicable provisions of the Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970, PL 91-646, approved 2 January 1971, and comply with the provision of Section 221 of the Flood Control Act of 1970, PL 91-611.	$6,890,000	0
Total Non-Federal Costs	$8,000,000	$3,700,000

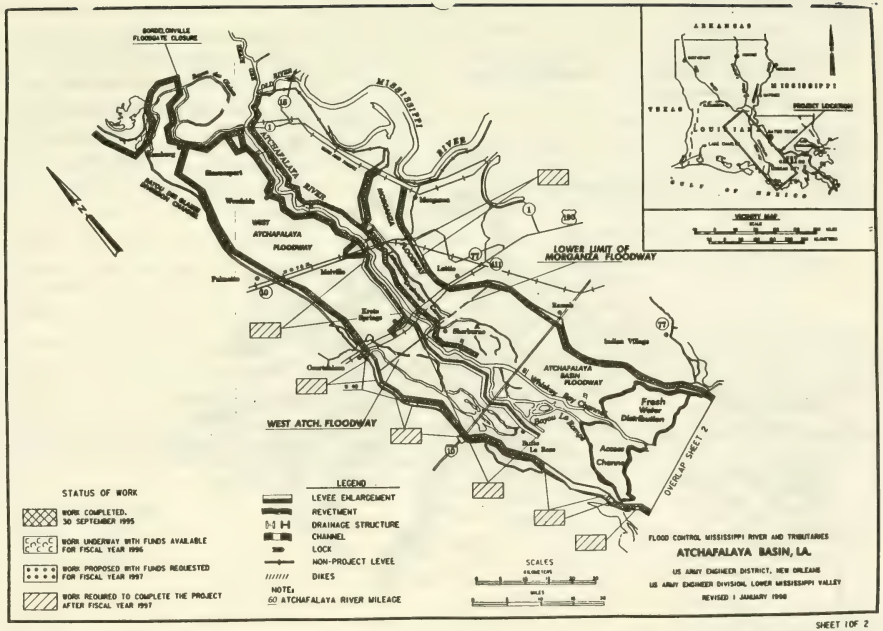
STATUS OF LOCAL COOPERATION: Necessary assurances for maintaining the project have been furnished by the Atchafalaya Basin Levee District; Red River, Atchafalaya and Bayou Boeuf Levee District; St. Mary Parish Government; Pointe Coupee Parish Police Jury; and the towns of Berwick and Morgan City, LA. These agencies are furnishing all requirements of local cooperation necessary for meeting present project schedules.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $1,650,000,000 is a decrease of $10,000,000 from the latest estimate ($1,660,000,000) presented to Congress (Fiscal Year 1996). This change includes the following items:

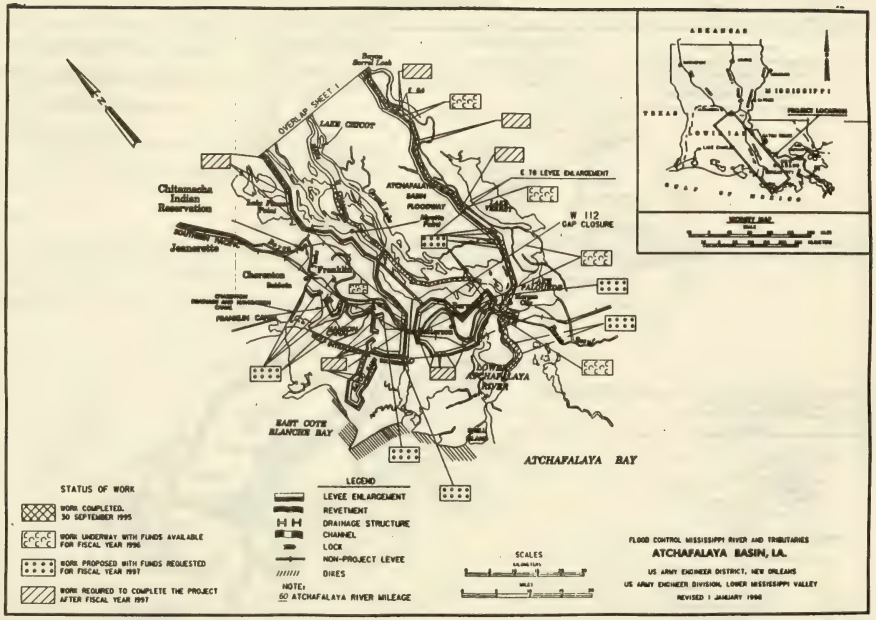
Item	Amount
Price Escalation on Construction Features	-$10,388,000
Design Changes	- 4,447,000
Post Contract Award and Other Estimating Adjustments	4,447,000
Price Escalation on Real Estate	388,000
Total	-$10,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency on 20 August 1982. The final Environmental Impact Statement for the Upper Pointe Coupe Loop Area was filed with the Council on Environment Quality on 11 June 1976.

OTHER INFORMATION: Funds to initiate construction were appropriated in 1928.


BORDELONVILLE FLOODGATE CLOSURE
MISSISSIPPI RIVER
OLD RIVER
ATCHAFALAYA RIVER
WEST ATCHAFALAYA FLOODWAY
Simmesport
Moreauville
Palmetto
Melville
Erwinville
Krotz Springs
Opelousas
Washington
Mansura
Marksville
Lottie
Zenith
Bunkie
Indian Village
ATCHAFALAYA BASIN FLOODWAY
Wilson
Big Cypress
Bayou Le Sauce
Butte Le Bon
Fresh Water Distributary
Amoor Chenier
LOWER LIMIT OF MORGANZA FLOODWAY
WEST ATCH. FLOODWAY
OVERLAP SHEET 2
ARKANSAS
MISSISSIPPI
TEXAS
LOUISIANA
PROJECT LOCATION
GULF OF MEXICO
VICINITY MAP
STATUS OF WORK
WORK COMPLETED, 30 SEPTEMBER 1995
WORK UNDERWAY WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FISCAL YEAR 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997
LEGEND
LEVEE ENLARGEMENT
REVETMENT
DRAINAGE STRUCTURE
CHANNEL
LOCK
NON-PROJECT LEVEE
DIKES
NOTE:
60 ATCHAFALAYA RIVER MILEAGE
SCALES
FLOOD CONTROL MISSISSIPPI RIVER AND TRIBUTARIES
ATCHAFALAYA BASIN, LA.
US ARMY ENGINEER DISTRICT, NEW ORLEANS
US ARMY ENGINEER DIVISION, LOWER MISSISSIPPI VALLEY
REVISED 1 JANUARY 1990

SHEET 1 OF 2


OVERLAP SHEET 1
LAKE CHICOT
E 86
E 70 LEVEE ENLARGEMENT
ATCHAFALAYA BASIN FLOODWAY
W 112 GAP CLOSURE
Chitimacha Indian Reservation
Jeanerette
Charenton
Franklin
FRANKLIN CANAL
LOWER ATCHAFALAYA RIVER
EAST COTE BLANCHE BAY
ATCHAFALAYA BAY
ARKANSAS
MISSISSIPPI
TEXAS
LOUISIANA
GULF OF MEXICO
PROJECT LOCATION
VICINITY MAP
STATUS OF WORK
WORK COMPLETED, 30 SEPTEMBER 1995
WORK UNDERWAY WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FISCAL YEAR 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997
LEGEND
LEVEE ENLARGEMENT
REVETMENT
DRAINAGE STRUCTURE
CHANNEL
LOCK
NON-PROJECT LEVEE
DIKES
NOTE: 60 ATCHAFALAYA RIVER MILEAGE
SCALES
FLOOD CONTROL MISSISSIPPI RIVER AND TRIBUTARIES
ATCHAFALAYA BASIN, LA.
US ARMY ENGINEER DISTRICT, NEW ORLEANS
US ARMY ENGINEER DIVISION, LOWER MISSISSIPPI VALLEY
REVISED 1 JANUARY 1996

SHEET 2 OF 2

APPROPRIATION TITLE: Flood Control, Mississippi River & Tributaries, AR, IL, KY, LA, MS, MO, and TN - Construction

PROJECT: Atchafalaya Basin Floodway System, Louisiana (Continuing)

LOCATION: The project is located in south-central Louisiana below the latitude of Old River and west of and generally paralleling the Mississippi River. The Atchafalaya River flows through the middle of the basin.

DESCRIPTION: The floodway is approximately 110 miles long by 15 miles wide. The plan of improvement for programmed work consists of acquisition of real estate interest, excluding minerals, in the Lower Atchafalaya Floodway for flood control purposes, environmental protection purposes, and public access. The plan of improvement for unprogrammed work consists of acquisition of real estate interest, excluding minerals, in the Lower Atchafalaya Floodway, for recreation developmental purposes and construction of several campgrounds, boat launching ramps, other recreational facilities and channels, canals, levees and floodwalls for the creation of five fish and wildlife management units. This work is unprogrammed pending a decision to initiate acquisition and construction. These project features will be considered for construction in accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986.

AUTHORIZATION: Supplemental Appropriations Act, 1985, and the Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 34.4 to 1 at 2-1/2 percent. The ratio is based on all features which comprise the Main Stem system of the Mississippi River and Tributaries project.

TOTAL BENEFIT-COST RATIO: 7.9 to 1 at 2-1/2 percent.

INITIAL BENEFIT-COST RATIO: This project feature of the Main Stem system was authorized in Fiscal Year 1928 and initial construction funds were provided in 1928. The authorized comprehensive review of the Mississippi River and Tributaries project, contained in House Document 308/88/2, as updated to reflect 1965 conditions and price levels, is considered to be the base estimate for the Main Stem system. The benefit-to-cost ratio for the Main Stem components computed for the base estimate was 7.9 to 1 (Fiscal Year 1928).

BASIS OF BENEFIT-COST RATIO: Benefits are from latest available evaluation approved in October 1979 at 1979 price levels. The latest comprehensive analysis was conducted in 1974. The 1979 analysis is the same as the 1974 analysis except that certain undocumented benefit categories were eliminated and 1979 price levels were used.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost			$172,000,000
Programmed Construction		$125,712,000	
Unprogrammed Construction		46,288,000	
Estimated Non-Federal Cost			13,000,000
Programmed Construction		0	
Unprogrammed Construction		13,000,000	
Cash Contribution	$12,264,000		
Other Costs	736,000		
Total Estimated Programmed Construction Cost		125,712,000	
Total Estimated Unprogrammed Construction Cost		59,288,000	
Total Estimated Project Cost			185,000,000

		ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1995	42,928,000	
Conference Allowance for FY 1996	5,300,000	
Allocation for FY 1996	4,701,000[1]	
Allocations through FY 1996	47,629,000	28
Allocation Requested for FY 1997	5,020,000	31
Programmed Balance to Complete after FY 1997	73,053,000	
Unprogrammed Balance to Complete after FY 1997	46,288,000	

STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULED
Land Acquisition	11	Being Determined
Recreation	0	Indefinite
Management Units	0	Indefinite
Entire Project	11	Being Determined

PHYSICAL DATA

Lands and Damages: 388,000 Acres
Relocations: 2 Pipelines
Recreation Facilities
3 campgrounds - developed
7 campgrounds - primitive
15 2-lane boat launching ramps
Channels, Canals, Levees & Floodwalls:
5 Fish and wildlife management units

[1] Reflects $599,000 reduction assigned as savings and slippage.

JUSTIFICATION: The Atchafalaya Basin Floodway System features result from a comprehensive study with a view to developing a plan for the management and preservation of the water and related land resources of the Atchafalaya River Basin, Louisiana, which would include provisions for reductions of siltation, improvement of water quality, and possible improvements of the area for commercial and sport fishing. The features of the Atchafalaya Basin Floodway System are compatible with the current flood control plan, and include real estate acquisition of developmental easements over privately owned land in the floodway south of Krotz Springs, Louisiana, to ensure unhampered use of the floodway during major floods and environmental easements over the same land to protect the basin's environmental resources. Provision of additional public access and several campgrounds, boat launching ramps, and other recreational facilities are also included to allow public enjoyment of the area's unique environmental values. The system management unit feature involves making use of distinct hydrologics within the floodway to restore historical overflow conditions and thereby enhance aquatic ecosystem productivity.

The Atchafalaya Basin Floodway System project is one of the Main Stem components which comprise the plan of improvement for the control of floods on the Mississippi River. The contribution of each element to the overall plan is inseparably related to that made by the others. Therefore, their benefits are inseparable and a composite benefit to cost ratio for the Main Stem components is necessary. The components are: Mississippi River Levees, Channel Improvement, South Bank Arkansas and South Bank Red River Levees, the Atchafalaya Basin, Atchafalaya Basin Floodway System, Old River, and a few miscellaneous items.

The value of lands and improvements protected by authorized works of the Main Stem System against the design flood is $124.9 billion in 1995 dollars. This consists of 226,000 residential acres which include the City of New Orleans 45,000 acres of commercial lands, 10 million acres of agricultural lands, and 6.5 million acres of woodland and marshland. The area subject to flooding by project flood assuming no protective works is 22.7 million acres. The area that will be provided complete protection by the completed project is 15.1 million acres.

The maximum flood of record for the Main Stem System, was the 1927 flood which overflowed about 26,000 square miles, caused the deaths of 214 people, rendered 637,000 people temporarily homeless, and caused property damages of $347.0 million. This would be equivalent to $9.3 billion damages in 1995 prices.

The next flood of magnitude was the 1973 flood which overflowed 16,875 square miles (10.8 million acres), caused the death of 28 people, and displaced approximately 45,300 persons. The deaths and displacements of persons would have been significantly higher without the project in place. Without Federal projects, approximately 19.8 million acres would have been inundated. Total damages with existing projects in operation were $643 million (1973 price levels). Damages without projects would have been $11.3 billion and total damages prevented by projects amount to $10.6 billion. Expressed in 1995 prices, damages without the projects would have been $37.9 billion and damages prevented would have been $33.7 billion.

The benefit to cost ratio was derived by measuring the total benefits credited to those Main Stem components against their total cost. Average annual benefits for the composite of Main Stem features are as follows:

Annual Benefits	Amount
Flood Control	$2,734,073,000
Navigation	878,281,000
Redevelopment	9,035,000
Recreation	2,374,000
Total Annual Benefits	$3,623,763,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Lands and Damages	$4,545,000
Planning, Engineering and Design for Management Units	300,000
Planning, Engineering and Design for Recreation	175,000
Total	$5,020,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Pay one-half of the separable cost allocated to recreation and bear all costs of operation, maintenance, and replacements of recreation facilities.	$12,264,000	$520,500
Provide lands, easements, rights-of-way, and dredged material disposal areas for recreation.	736,000	0
Bear all costs of operation and maintenance of Fish and Wildlife Management Units.	0	70,788
Total Non-Federal Costs	$13,000,000	$591,288

STATUS OF LOCAL COOPERATION: There is no non-Federal cost associated with the presently programmed work. The State of Louisiana agreed to provide a letter of interest supporting the recreation feature of the project and agrees to its cost sharing requirements. In the event a decision is made to implement the unprogrammed features of the project, local cooperation agreements in accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986 will be obtained prior to the initiation of construction. The State of Louisiana designated the Department of Natural Resources in regard to land acquisition and land management and the Department of Culture, Recreation, and Tourism in regard to the construction of recreation facilities to represent the State as local assuring agencies. Cost sharing is required for the management of Fish and Wildlife enhancement features being provided under the current land acquisition program.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $172,000,000 is an increase of $8,000,000 from the latest estimate ($164,000,000) presented to Congress (Fiscal Year 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 1,484,000
Price Escalation on Real Estate	6,516,000
Total	$ 8,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency on 20 August 1982.

OTHER INFORMATION: Funds to initiate construction were appropriated in Fiscal Year 1985.

SUMMARIZED FINANCIAL DATA (Land Acquisition)

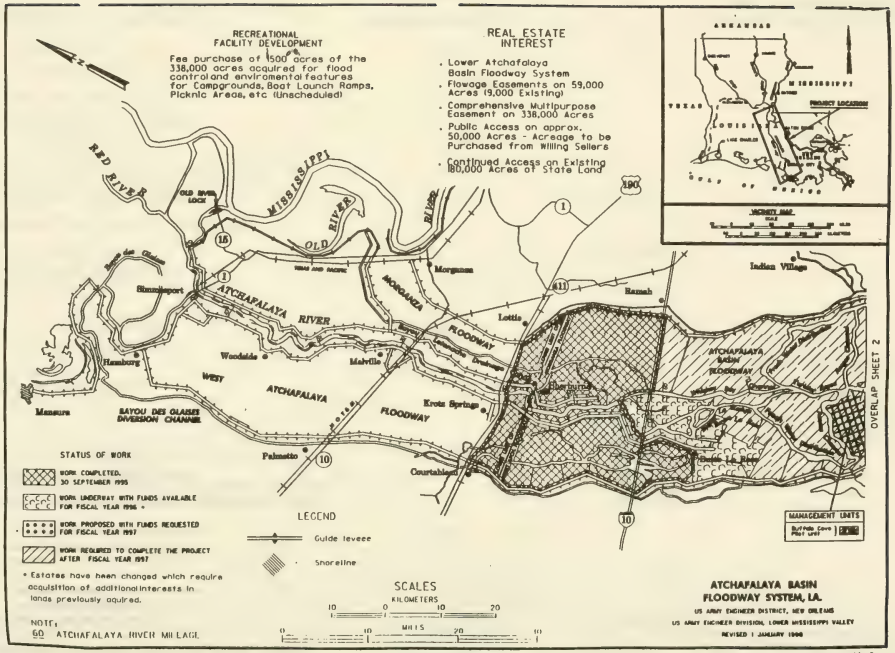
Estimated Federal Cost			$121,116,000
Programmed Construction		$121,116,000	
Unprogrammed Construction		0	
Estimated Non-Federal Cost			0
Programmed Construction		0	
Unprogrammed Construction		0	
Cash Contribution	0		
Other Costs	0		
Total Estimated Programmed Construction Cost			$121,116,000
Total Estimated Unprogrammed Construction Cost			0
Total Estimated Project Cost			$121,116,000

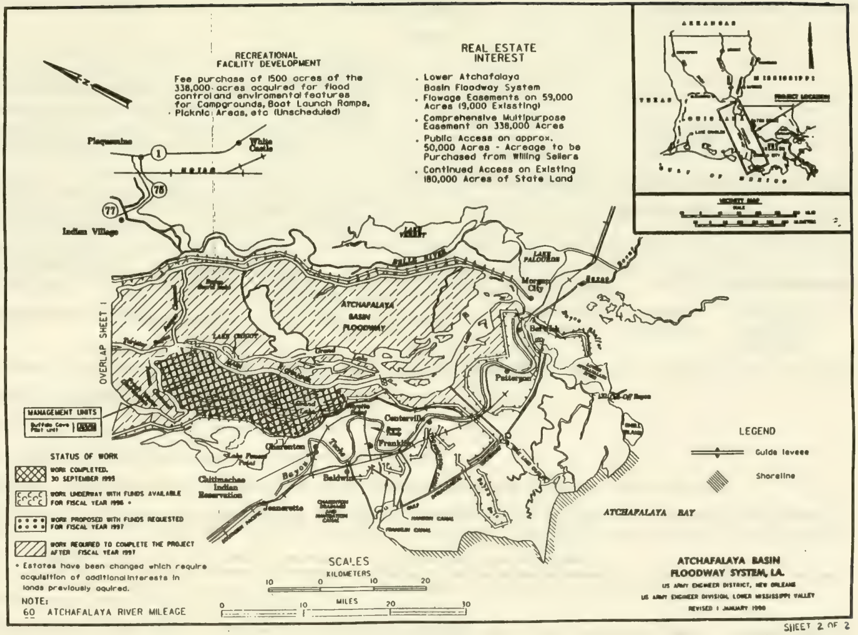
SUMMARIZED FINANCIAL DATA (Recreation)

Estimated Federal Cost			$ 13,159,000
Programmed Construction		$ 435,000	
Unprogrammed Construction		$ 12,724,000	
Estimated Non-Federal Cost			$ 13,000,000
Programmed Construction		$ 0	
Cash Contributions	$ 0		
Other Costs	$ 0		
Unprogrammed Construction		$ 13,000,000	
Cash Contributions	$ 12,264,000		
Other Costs	$ 736,000		
Total Estimated Programmed Construction Cost			$ 435,000
Total Estimated Unprogrammed Construction Cost			$ 25,724,000
Total Estimated Project Cost			$ 26,159,000

SUMMARIZED FINANCIAL DATA (Management Units)

Estimated Federal Cost		$ 37,725,000
Programmed Construction	$ 4,161,000	
Unprogrammed Construction	$ 33,564,000	
Estimated Total Federal Cost		$ 0
Programmed Construction	$ 0	
Unprogrammed Construction	$ 0	
Total Estimated Programmed Construction Cost		$ 4,161,000
Total Estimated Unprogrammed Construction Cost		$ 33,564,000
Total Estimated Project Cost		$ 37,725,000


RECREATIONAL FACILITY DEVELOPMENT
Fee purchase of 1500 acres of the 338,000 acres acquired for flood control and environmental features for Campgrounds, Boat Launch Ramps, Picknic Areas, etc (Unscheduled)
REAL ESTATE INTEREST
. Lower Atchafalaya Basin Floodway System
. Flowage Easements on 59,000 Acres (9,000 Existing)
. Comprehensive Multipurpose Easement on 338,000 Acres
. Public Access on approx. 50,000 Acres - Acreage to be Purchased from Willing Sellers
. Continued Access on Existing 180,000 Acres of State Land
ARKANSAS
MISSISSIPPI
TEXAS
LOUISIANA
PROJECT LOCATION
GULF OF MEXICO
VICINITY MAP
RED RIVER
MISSISSIPPI RIVER
OLD RIVER LOCK
OLD RIVER
MORGANZA
Morganza
Simmesport
ATCHAFALAYA RIVER
Hamburg
Wooddale
Melville
Lottie
Ramah
Indian Village
WEST ATCHAFALAYA FLOODWAY
Krotz Springs
Mansura
BAYOU DES GLAISES DIVERSION CHANNEL
Palmetto
Courtableau
ATCHAFALAYA BASIN FLOODWAY
OVERLAP SHEET 2
STATUS OF WORK
WORK COMPLETED, 30 SEPTEMBER 1995
WORK UNDERWAY WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996 *
WORK PROPOSED WITH FUNDS REQUESTED FOR FISCAL YEAR 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997
* Estates have been changed which require acquisition of additional interests in lands previously aquired.
NOTE:
60 ATCHAFALAYA RIVER MILEAGE
LEGEND
Guide levees
Shoreline
SCALES
KILOMETERS
MILES
MANAGEMENT UNITS
Buffalo Cove Pilot Unit
ATCHAFALAYA BASIN FLOODWAY SYSTEM, LA.
US ARMY ENGINEER DISTRICT, NEW ORLEANS
US ARMY ENGINEER DIVISION, LOWER MISSISSIPPI VALLEY
REVISED 1 JANUARY 1996



18 March 1996

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO and TN - Construction

PROJECT: Eight Mile Creek, Arkansas (Continuing)

LOCATION: The project is located in Greene and Craighead Counties in northeastern Arkansas approximately 90 miles northwest of Memphis, Tennessee. The city of Paragould, Arkansas, is drained by Eight Mile Creek.

DESCRIPTION: The project provides for 12.4 miles of channel improvement. There are 4.4 miles within the city limits of Paragould, Arkansas, with the remaining 8.0 miles providing a downstream outlet for the city. All work is programmed.

AUTHORIZATION: 1985 Supplemental Appropriations Act and the Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 2.2 to 1 at 8-1/8 percent.

TOTAL BENEFIT-COST RATIO: 1.5 to 1 at 8-1/8 percent.

INITIAL BENEFIT-COST RATIO: 1.2 to 1 at 8-1/8 percent (FY 1985).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available reevaluation approved in January 1995 at 1993 price levels.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		$ 8,570,000
Programmed Construction	$8,570,000	
Unprogrammed Construction	0	
Estimated Non-Federal Cost		$ 5,330,000
Programmed Construction	$5,330,000	
Cash Contributions	$ 695,000	
Other Costs	4,635,000	
Estimated Non-Federal Cost		
Unprogrammed Construction	0	
Total Estimated Programmed Construction		$13,900,000
Total Estimated Unprogrammed Construction		0
Total Estimated Project Cost		$13,900,000

STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	0	Being Determined

PHYSICAL DATA

Lands and Damages:	180 acres Commercial/Residential
Relocations:	
Roads	7 bridges
Railroads	2 bridges
Channels:	12.4 miles

ACCUM.

SUMMARIZED FINANCIAL DATA		PCT. OF EST. FED. COST
Allocations to 30 September 1995	$ 2,062,000	
Conference Allowance for FY 1996	580,000	
Allocation for FY 1996	$198,000 [1]	
Allocation through FY 1996	2,260,000	26
Allocation Requested for FY 1997	841,000	36
Programmed Balance to Complete after FY 1997	5,469,000	
Unprogrammed Balance to Complete after FY 1997	0	

JUSTIFICATION: Eight Mile Creek provides drainage primarily for the city of Paragould, Arkansas. A 100-year flood would cause expected annual damages of $2,400,000 (October 1994 price levels). The project will provide 100-year protection in the urban area of Paragould and maintain current 3-year protection levels in the downsteam rural area. Flooding impacts 1,750 residential and commercial structures and contents within the 100-year flood plain. The structures and contents have a value of approximately $156,269,000 (October 1995 price levels). Total damage from a 100-year flood is estimated at approximately $12,132,000 (October 1995 price levels). Average annual damage for such properties with project is $164,700 (October 1994 price levels). Flooding has occurred to some extent on an annual basis. Major floods occurred in 1973, 1974, 1980, and 1991. The plan of improvement addresses the need for flood damage reduction without significant detriment to the natural environment. Total average annual benefits, all for flood control, are $2,260,000.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue:	
Item 1	$670,000
Planning, Engineering and Design	$112,000
Supervision and Administration	59,000
Total	$841,000

[1] Reflects $66,000 reduction assigned as savings and slippage; and $316,000 reprogrammed from the project.

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursement	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas.	2,714,000	
Modify or relocate, utilities, roads, bridges (except railroad bridges), and other facilities where necessary for the construction of the project.	1,921,000	
Pay 5 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	695,000	$21,000
Total Non-Federal Costs	$5,330,000	$21,000

The non-Federal sponsor has agreed to make all required payments concurrently with project construction.

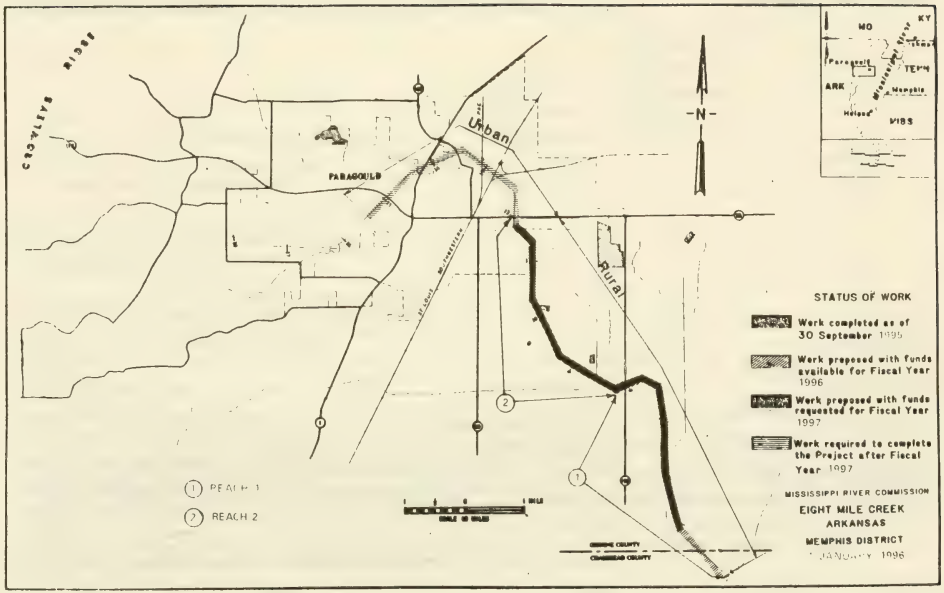
STATUS OF LOCAL COOPERATION: Paragould city officials have expressed a renewed interest in constructing the project. The Limited Reevaluation Report and financing plan were approved on 12 January 1995. The city of Paragould will finance the project by rights-of-way donations, utility donations, and by using revenues generated by the existing city tax base. The city already has letters of intent from landowners for the majority of rights-of-way and letters of intent to donate from utility owners. City officials have identified sufficient funds in current annual tax revenue which can be used to meet project cash contributions and other requirements. The Project Cost Sharing Agreement with the city was executed on 8 September 1995. However, the city attorney has refused to sign the Certificate of Authority for fear of violating the Arkansas State Constitution against obligating future revenues. Toward this end, the city has requested changes in language in the Certificate of Authority. This issue is expected to be resolved by May 1996.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $8,570,000 is a decrease of $50,000 from the latest estimate ($8,620,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	-$ 50,000
Total	-$ 50,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An environmental assessment/FONSI was completed as part of the August 1988 General Design Memorandum. A cultural resources field survey indicates that some cultural resource sites are located in the project vicinity. The project will not impact any of the sites. There are no endangered species in the project area. Water quality certification was granted by the State of Arkansas in January 1988.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1985.


CROWLEYS RIDGE
PARAGOULD
Urban
Rural
-N-
MO
KY
TENN
ARK
MISS
Paragould
Memphis
Helena
STATUS OF WORK
Work completed as of 30 September 1995
Work proposed with funds available for Fiscal Year 1996
Work proposed with funds requested for Fiscal Year 1997
Work required to complete the Project after Fiscal Year 1997
MISSISSIPPI RIVER COMMISSION
EIGHT MILE CREEK
ARKANSAS
MEMPHIS DISTRICT
JANUARY 1996
1 REACH 1
2 REACH 2
SCALE OF MILES
GREENE COUNTY
CRAIGHEAD COUNTY

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN - Construction

PROJECT: St. Francis Basin, Arkansas and Missouri (Continuing)

LOCATION: The project is located in the St. Francis Basin in southeastern Missouri and northeastern Arkansas, and extends from the hills southwest of Cape Girardeau, Missouri, near Wappapello, Missouri, to the confluence of the St. Francis and Mississippi Rivers about 10 miles above Helena, Arkansas.

DESCRIPTION: The project provides for protection against headwater floods by means of a detention reservoir at Wappapello, MO, improvement of the flood-carrying capacities of the St. Francis and Little Rivers and their principal tributaries by means of levees, channel improvements, new channels, auxiliary channels, and floodways, including the main ditches in the Little River Basin. Protection against backwater flooding of the Mississippi River is provided by realignment of the St. Francis River channel supplemented with auxiliary channels, levee construction, and a pumping plant and floodgate. All work is programmed.

AUTHORIZATION: Flood Control Acts of 1928, 1936, 1938, 1941, 1944, 1946, 1950, 1958, 1965, and 1968 and Water Resources Development Act of 1974.

REMAINING BENEFIT - REMAINING COST RATIO: 3.1 to 1 at 2-1/2 percent.

TOTAL BENEFIT - COST RATIO: 3.5 to 1 at 2-1/2 percent.

INITIAL BENEFIT - COST RATIO: This project feature was authorized in Fiscal Year 1928 and initial construction funds were provided in Fiscal Year 1938. The authorized comprehensive review of the Mississippi River and Tributaries project, contained in House Document 308/88/2, as updated to reflect 1965 conditions and price levels, is considered to be the base estimate for the project. The benefit-cost ratio for the St. Francis Basin components computed for the base estimate was 2.4 to 1.

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation approved in July 1985 at 1983 price levels.

SUMMARIZED FINANCIAL DATA

			ACCUM. PCT. OF EST. FED. COST
Estimated Federal Cost		$381,000,000	
Estimated Non-Federal Cost		1,876,000	
Cash Contribution	$ 263,000		
Other Costs	1,613,000		
Total Estimated Project Cost		$382,876,000	
Allocations to 30 September 1995		$335,135,000	
Conference Allowance for FY 1996		10,000,000	
Allocation for FY 1996		8,300,000[1]	
Allocations through FY 1996		$343,435,000	90
Allocation Requested for FY 1997		$ 8,900,000	92
Programmed Balance to Complete After FY 1997		28,665,000	
Unprogrammed Balance to Complete After FY 1997		0	

STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Big Slough and Mayo Ditch	100	
Wappapello Lake	100	
Little River Drainage	96	Being Determined
St. Francis River and Tributaries	88	Being Determined
Entire Project	90	Being Determined

PHYSICAL DATA

Levees:
- Average Height - 11.7 feet
- Length - 438.0 miles

Channels:
- St. Francis River and Tributaries - 638 miles
- Little River Drainage - 299 miles
- Big Slough and Mayo Ditches - 28 miles

Pumping Plants:
- 1 - 25 cubic feet per second
- 1 - 12,000 cubic feet per second
- 1 - 700 cubic feet per second

Relocations:
- Roads - 21.3 miles and 296 bridges
- Railroads - 39 bridges

Dam and Reservoir: 1 - Dam

Flood Control and Diversion Structures: 8

Lands and Damages:
188,927 acres

Other: 1 - Siphon

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[1] Reflects $1,130,000 reduction assigned as savings and slippage and $570,000 reprogrammed from the project.

JUSTIFICATION: The project is a single-purpose flood control project and is a unit in the Comprehensive Plan for Flood Control, Mississippi River and Tributaries. Protection against headwater floods of the St. Francis and Little Rivers will be afforded to an area of approximately 1,436,855 acres of agricultural lands including numerous small towns, several major railroads, highways, and utilities, located in Missouri and Arkansas. The construction of adequate outlets for the many drainage improvements undertaken by local interests will provide relief from overflow on approximately 196,700 acres in the Little River Basin, 29,000 acres in the Elk Chute Basin, and 35,000 acres in the Big Slough area. In addition, relief from flooding by backwaters of the Mississippi River is afforded to approximately 532,000 acres in the Lower St. Francis Basin below the latitude of St. Francis Lake by the Madison to Marianna Cutoff and related work including the pumping plant. Flooding has occurred every year with few exceptions, and the flood of record occurred in 1937 causing numerous breaks in the locally constructed substandard levees with resultant damages of over $2,000,000. It is estimated that the recurrence of the 1937 flood, under present conditions of development in the floodplain, would cause damages of over $55,825,000 (1995 price levels) if the flood occurred during the crop growing season. Continuing construction of this project is needed to prevent recurring flood losses. Project benefits will result from flood damages prevented, increased utilization of land, and fish and wildlife enhancement. Counties within the project area that are subject to substantial and persistent unemployment are: Cross, Lee, Mississippi, Poinsett and St. Francis in Arkansas, and Bollinger County in Missouri. Average annual benefits (1983 price levels) are as follows (for total project):

Annual Benefits	Amount
Flood Control	$27,439,000
Recreation	2,152,000
Fish and Wildlife	333,000
Area Redevelopment	785,000
Advance Replacement	1,807,000
Betterments	519,000
Relocation Assistance	24,000
Total	$33,059,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

ST. FRANCIS RIVER AND TRIBUTARIES	
Initiate:	
Item 4, Ditch 1, AR	822,000
Railroad Bridge, Main & Ditch 2, Item 2, MO, Mile 21.30	194,000
Main & Ditch 2, Item, 1, MO	1,345,000
Initiate & Complete:	
County Bridge, Main & Ditch 2, Item 2, Mile 20.89	141,000
County Bridges, Main & Ditch 2, MO, Miles 17.12 & 19.85	402,000
Continue:	
State Bridge, Main & Ditch 2, MO, Mile 17.70	1,391,000
Miscellaneous Utility Relocations	288,000
Lands and Damages	1,600,000
Gravel on Roadways	403,000
Complete:	
Bypass Steele, MO	279,000
Cultural Resources Preservation	7,000
Railroad Bridge, Main & Ditch 2, Item 1, Mile 12.07	98,000
Planning, Engineering and Design	1,295,000
Supervision and Administration	550,000
Subtotal	$8,815,000
LITTLE RIVER DRAINAGE	
Continue:	
Lands and Damages	2,000
Supervision and Administration	83,000
Subtotal	$85,000
Total	$8,900,000

NON-FEDERAL COST: Prior to the Flood Control Act of 1946, local interests provided lands, easements, and rights-of-way and provided for relocation of interfering facilities. After 1946, local cooperation was limited to minor maintenance of levees except for providing right-of-way for specific features, i.e., recreation facilities at the W. G. Huxtable Pumping Plant, Inter River Culvert and St. Francis Lake Control Structure. A tabulation of these and other non-federal costs is as follows:

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$1,492,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	121,000	
Pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, and replacement of recreation facilities.	85,000	
Pay all costs of minor maintenance of levees.		$922,000
Pay a portion equivalent to 6.4% of the first costs associated with the improvements in the Big Lake area for fish and wildlife enhancement.	$ 178,000	
Total Non-Federal Costs	$1,876,000	$922,000

STATUS OF LOCAL COOPERATION: Necessary assurances have been furnished by 24 levee and drainage districts to perform minor maintenance as required by law. These agencies are furnishing all requirements of local cooperation necessary for meeting the present project schedule.

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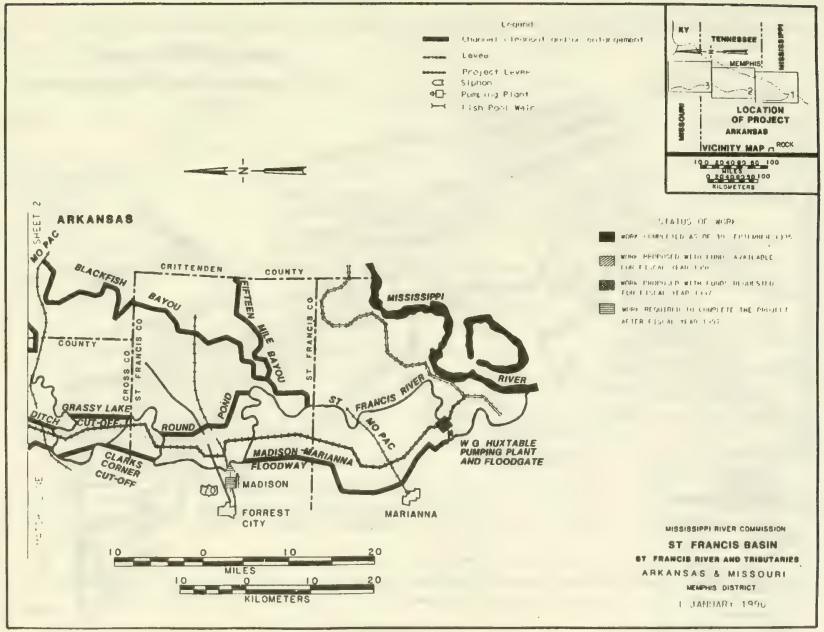
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $381,000,000 is the same as the latest estimate ($381,000,000) presented to Congress (Fiscal Year 1996). Adjustments were made within the total cost estimate as follows:

Item	Amount
Price Escalation on Construction Features	$439,000
Post Contract Award and Other Estimating Adjustments	121,000
Price Escalation on Real Estate	-560,000
Total	$ 0

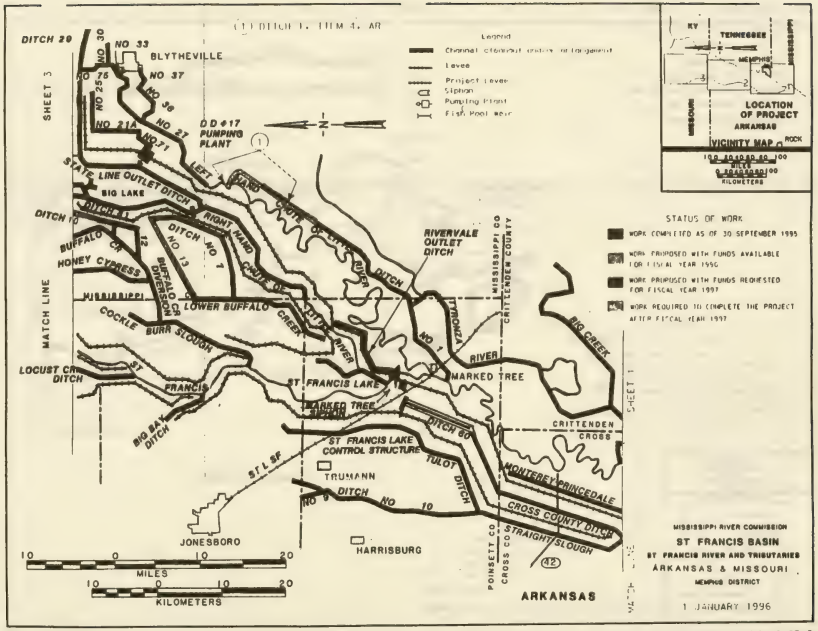
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 11 December 1973.

OTHER INFORMATION: Initial construction funds were appropriated in Fiscal Year 1938.

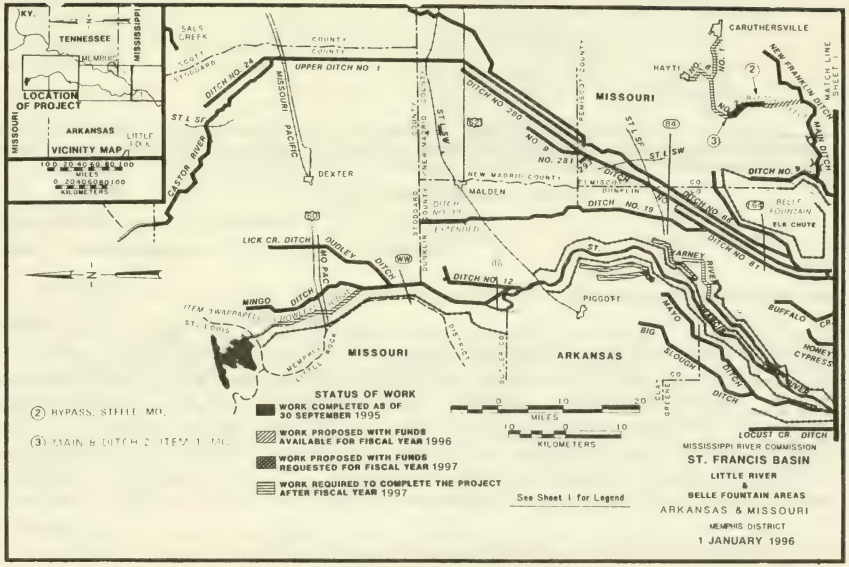


18 March 1996

SHEET 1 OF 3


(1) DITCH 1, ITEM 4, AR
Legend
Channel cleanout (where no alignment)
Levee
Project levee
Siphon
Pumping Plant
Fish Pool weir
LOCATION OF PROJECT
ARKANSAS
VICINITY MAP
KY
TENNESSEE
MISSOURI
MISSISSIPPI
MEMPHIS
ROCK
MILES
KILOMETERS
STATUS OF WORK
WORK COMPLETED AS OF 30 SEPTEMBER 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FISCAL YEAR 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997
DITCH 20
NO 33
BLYTHEVILLE
NO 30
NO 25
NO 76
NO 37
NO 36
NO 27
NO 71A
NO 71
DD #17 PUMPING PLANT
SHEET 3
STATE LINE OUTLET DITCH
BIG LAKE
DITCH 11
DITCH 12
DITCH 13
DITCH 40
DITCH 7
BUFFALO CR
HONEY CYPRESS
BUFFALO DIVERSION
MISSISSIPPI
COCKLE
BURR SLOUGH
LOWER BUFFALO
MATCH LINE
LOCUST CR DITCH
FRANCIS
BIG BAY DITCH
RIGHT BANK
LEFT
BAND
OUTLET OF LOWER BUFFALO
DITCH
CREEK
RIVER
RIVERVALE OUTLET DITCH
TRIONYX
40
MISSISSIPPI CO
CRITTENDEN COUNTY
RIVER
MARKED TREE
BIG CREEK
ST FRANCIS LAKE
MARKED TREE SLOUGH
DITCH 60
CRITTENDEN CROSS
ST FRANCIS LAKE CONTROL STRUCTURE
TULOT DITCH
MONTEREY-PRINCEDALE
ST L SF
TRUMANN
NO 9 DITCH
NO 10
CROSS COUNTY DITCH
STRAIGHT SLOUGH
42
JONESBORO
HARRISBURG
POINSETT CO
CROSS CO
ARKANSAS
SHEET 1
MILES
KILOMETERS
MISSISSIPPI RIVER COMMISSION
ST FRANCIS BASIN
BY FRANCIS RIVER AND TRIBUTARIES
ARKANSAS & MISSOURI
MEMPHIS DISTRICT
1 JANUARY 1996

SHEET 2 OF 3


KY.
TENNESSEE
MEMPHIS
MISSISSIPPI
MISSOURI
LOCATION OF PROJECT
ARKANSAS
LITTLE ROCK
VICINITY MAP
MILES
KILOMETERS
SALS CREEK
COUNTY
SCOTT
STODDARD
UPPER DITCH NO 1
DITCH NO. 24
ST L SF
CASTOR RIVER
MISSOURI PACIFIC
DEXTER
MISSOURI
HAYTI
CARUTHERSVILLE
NEW FRANKLIN DITCH
MAIN DITCH
DITCH NO. 280
NO. 281
ST L SW
NEW MADRID COUNTY
MALDEN
DITCH NO. 19
DITCH NO. 87
DITCH NO. 8
BELLE FOUNTAIN
ELK CHUTE
LICK CR. DITCH
DIDLEY DITCH
DITCH NO. 12
PIGGOTT
STARNES
RIVER
MINGO
DITCH
ITEM 3 WAPPAPELLO
ST. LOUIS
MISSOURI
ARKANSAS
BUFFALO CR.
HONEY CYPRESS
BIG SLOUGH DITCH
LOCUST CR. DITCH
STATUS OF WORK
WORK COMPLETED AS OF 30 SEPTEMBER 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FISCAL YEAR 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997
(2) BYPASS, STEELE MO.
(3) MAIN & DITCH 2 ITEM 1 MO.
See Sheet 1 for Legend
MISSISSIPPI RIVER COMMISSION
ST. FRANCIS BASIN
LITTLE RIVER
&
BELLE FOUNTAIN AREAS
ARKANSAS & MISSOURI
MEMPHIS DISTRICT
1 JANUARY 1996
SHEET 3 OF 3

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN - Construction

PROJECT: Tensas Basin, Arkansas and Louisiana (Continuing)

LOCATION: The Tensas Basin is located in the alluvial valley of Arkansas and Louisiana between the Mississippi River on the east and an escarpment on the west and extends southward from the Arkansas River to the Red River in the vicinity of Marksville, Louisiana.

DESCRIPTION: The Basin is comprised of two separable units--the upper portion known as the Boeuf-Tensas area and the lower portion known as the Red River backwater area. Major features in the upper Basin consist of 120.4 miles of channel and tributary improvements along the Tensas River and a 6,500 cubic foot per second pumping plant at Lake Chicot, Arkansas. The lower basin features include 93.1 miles of levee and a 4,000 cubic foot per second pumping plant in the Tensas-Cocodrie subarea; 83.2 miles of ring levee for the Larto Lake to Jonesville subarea; construction of a 56.0-mile levee and two pumping plants (300 and 750 cubic feet per second) at Sicily Island subarea; and a 31.3-mile levee with a 500 cubic foot per second pumping plant for the Below Red River subarea. All work within the project is programmed except Tensas River (Boeuf and Tensas Rivers, etc.), and Below Red River Area (Red River Backwater). Because of the inability of the local development authority to execute its assurances, two remaining recreation facilities at Lake Chicot have been deleted from the project. The Tensas River Project was reclassified to the inactive category in September 1990 because the project currently does not have a committed local sponsor to cost share further work on the project and there is no indication that a commitment will be made in the near future. The Below Red River Area Project was reclassified to the inactive category in May 1993 based on the lack of economic justification.

AUTHORIZATION: Flood Control Acts of 1941, 1944, 1946, 1950, 1958, 1962, 1965, 1968, and Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 4.4 to 1 at 2-1/2 percent.

TOTAL BENEFIT-COST RATIO: 4.4 to 1 at 2-1/2 percent.

INITIAL BENEFIT - COST RATIO: 3.0 to 1 at 2-1/2 percent (Fiscal Year 1967).

BASIS OF BENEFIT-COST RATIO: Benefits are based on the "1974 Mississippi River and Tributaries Update," except for the Below Red River project, which was based on the "Phase II, General Design Memorandum," dated December 1988, and the Tensas River project, which was based on the "Tensas River Project, Louisiana, General Design Memorandum No. 26," dated December 1988.

SUMMARIZED FINANCIAL DATA		
Estimated Total Apprn Requirement		$475,998,000
Programmed Construction	$362,376,000	
Unprogrammed Construction	113,622,000	
Future Non-Federal Reimbursement		1,784,000
Programmed Construction	1,784,000	
Unprogrammed Construction	0	
Estimated Federal Cost (Ultimate)		474,214,000
Programmed Construction	360,592,000	
Unprogrammed Construction	113,622,000	
Estimated Non-Federal Cost		30,728,000
Programmed Construction	2,246,000	
Cash Contribution $ 0		
Other Costs 462,000		
Reimbursements 1,784,000		
Rec Fac $1,784,000		
Unprogrammed Construction	28,482,000	
Cash Contribution 7,403,000		
Other Costs 21,079,000		
Total Estimated Programmed Construction Cost		362,838,000
Total Estimated Unprogrammed Construction Cost		142,104,000
Total Estimated Project Cost		504,942,000

STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Boeuf and Tensas Rivers, etc.		
All Work Except Lake Chicot Pumping Plant	82	Indefinite
Lake Chicot Pumping Plant	100	Sep 1992
Tensas River Separable Element	0	Indefinite
Red River Backwaer Area		
All Work Except Tensas-Cocodrie Pumping Plant	65	Being Determined
Tensas-Cocodrie Pumping Plant	99	Indefinite
Below Red River Separable Element	0	Indefinite
Entire Project	89	Being Determined

		ACCUM. PCT OF EST. FED. COST
Allocations to 30 September 1995	$274,120,000	
Conference Allowance for FY 1996	11,294,000	
Allocation for FY 1996	9,355,000 [1]	
Allocations through FY 1996	283,475,000	60
Allocation Requested for FY 1997	11,393,000	62
Programmed Balance to Complete After FY 1997	67,508,000	
Unprogrammed Balance to Complete After FY 1997	113,622,000	

PHYSICAL DATA

Boeuf and Tensas Rivers, Etc.
All Work Except Lake Chicot Pumping Plant

Lands and Damages:
74,279 acres

Relocations:
Roads: 26.6 miles and 88 bridges
Railroads: 9 bridges

Channels and Canals:
1,009.3 miles

Lake Chicot Pumping Plant

Lands and Damages:
1,201 acres

Relocations:
Roads: 1 mile

Channels and Canals:
2 Weirs

Dams:
1 - 200 feet length
1 - 300 feet length

Recreation Facilities:
4 sites

Pumping Plants:
1 - 6,500 cubic feet per second

Roads:
1 - Access Road for Pumping Plant
1 - Access Road for Ditch Bayou Dam
1 - Access Road for Connerly Bayou Dam

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[1] Reflects $1,277,000 reduction assigned as savings and slippage and $662,000 reprogrammed from the project.

Red River Backwater Area
All Work Except Tensas-Cocodrie Pumping Plant

Lands and Damages:
29,091 acres (includes 12,800 acres for mitigation)

Relocations:
Roads: 28.4 miles and 5 bridges

Levees and Floodwalls:
Levees:
Average Height: 10-25 feet
Length: 263.6 miles
Drainage Structures: 32 (24" pipes to 10' x 15' box culverts)

Channels and Canals: 46.0 miles
All Interior Drainage except 1-1/2 miles Smithland Cutoff

Recreation Facilities:
9 miles access road

Pumping Plants:
1-300 cubic feet per second
1-750 cubic feet per second
1-500 cubic feet per second

Fish and Wildlife:
1.1 miles diversion channel,
Two 60-inch pipe gravity structures,
1 weir

Tensas-Cocodrie Pumping Plant

Lands and Damages:
790 acres

Relocations:
Roads: 1.4 miles and 3 bridges

Channels and Canals:
6.8 miles, 1 concrete weir, 1 earth weir, and 1 gravity structure

Pumping Plant:
1-4,000 cubic feet per second

Fish and Wildlife Facilities:
Diversion channel
2 water control structures
3 boat-launching ramps

JUSTIFICATION: The Tensas Basin project is comprised of two separable units: the Boeuf and Tensas Rivers, which includes the Lake Chicot Pumping Plant, and the Red River Backwater Area, which includes the Tensas-Cocodrie Pumping Plant.

The land in the Boeuf and Tensas River Basin possesses a high potential for agricultural production but this potential is restricted by the frequency and duration of overflow and by poor drainage which, for long periods, causes the ground to remain in a condition unsuitable for cultivation. The project will eliminate most of these hindrances and allow full economic development by providing adequate channels for the streams and major outlets for an effective local drainage system. A total of 922,000 acres (including Lake Chicot) will be substantially benefitted by the project. Lands in the Red River Backwater Area are extremely fertile but their development to full potential is adversely affected by backwaters of the Mississippi River. These lands must remain subject to use for storage of floodwaters during a Mississippi River project flood. However, protection of the area against lesser floods, particularly headwater floods of the Ouachita, Black,

and Red Rivers, will permit a high degree of economic development. A total of 575,700 acres will be substantially benefitted by the project. Average annual benefits for the Tensas Basin are as follows:

Annual Benefits	Amount
Flood Control	$38,187,000
Recreation	567,000
Fish and Wildlife	416,000
Area Redevelopment	494,000
Total	$39,664,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Red River Backwater Area	
All Work Except Tensas-Cocodrie Pumping Plant	
Initiate:	
Sicily Island Item 3B	$ 1,600,000
Sicily Island Item 2A	201,000
Sicily Island Utility Relocation Item 2A	8,000
Initiate and Complete:	
Sicily Island Utility Relocation Item 2B	11,000
Sicily Island Utility Relocation Item 3B	67,000
Continue:	
Lands and Damages	1,329,000
Sicily Island Item 3A	1,670,000
Fool River Pump Levee and Pumping Plant	2,979,000
Complete:	
Sicily Island Item 4A	7,000
Sicily Island Item 4B	174,000
Planning Engineering and Design	2,383,000
Supervision and Administration	964,000
TOTAL	$11,393,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the initial authorization and subsequent authorized modifications of the Tensas Basin project including the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
All Work Except Tensas River and Below Red River		
Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas.	$ 462,000	
Pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of recreation facilities.	1,784,000	$ 1,367,000
Subtotal Non-Federal Costs	$ 2,246,000	$ 1,367,000

Local interests estimate that they have expended at least $5,900,000 in the Tensas Basin on the construction of drainage improvements prior to initiation of the Federal project. They estimate they will spend an additional $48,343,000 in construction on connecting ditches, main laterals, and on-farm drainage improvements. This work is being accomplished as the major outlets are opened. Local drainage and levee districts have reported that they expended approximately $5,388,032 on construction and maintenance of drainage improvements between 1950 and 1985.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Tensas River		
Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas.	$ 8,402,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	10,971,000	
Pay 5 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities.	3,127,000	$ 410,000
Subtotal Non-Federal Costs	$22,500,000	$ 410,000
Below Red River		
Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas.	$ 1,706,000	
Pay 18.9 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities.	4,276,000	$ 117,000
Subtotal Non-Federal Costs	$ 5,982,000	117,000
Total Non-Federal Costs	$30,728,000	$1,894,000

STATUS OF LOCAL COOPERATION:

Boeuf and Tensas Rivers, Etc.

Formal assurances have been furnished by eight levee and drainage districts to operate and maintain all units of the project except the Kirsch Lake Canal. Assurances for Lake Chicot Pumping Plant required by PL 91-611 and PL 91-646 were accepted 16 April 1976 and a cost sharing agreement with the Chicot County Rural Development Authority was executed 28 May 1976. All lands for Lake Chicot recreation development were furnished by 30 March 1976.

The local development authority, which provided assurances that it would operate and maintain Corps constructed recreation facilities in the Tensas Basin at Lake Chicot, Arkansas, has since notified the Vicksburg District that it is unable to comply with the assurances previously furnished regarding operation and maintenance of two remaining recreation facilities, and that the two remaining facilities are not needed. The local authority has been informed that based on the fact that the two remaining facilities are not needed, all programmed construction is considered complete and payback of their cost share for construction should begin in accordance with executed assurances. The local authority has been unable to identify a source of funds to repay the debt. The matter was elevated to the Governor of Arkansas; however, since the local authority was not sanctioned by the State, the State feels no legal obligation for the payment. A litigation report has been sent to the Department of Justice.

Red River Backwater Area

Formal assurances were received 12 February 1947 and accepted 24 April 1947 for all project features except the Sicily Island Area. Assurances of local cooperation were received on 10 February 1981 and accepted 1 April 1981 for the Sicily Island Area project. The adoption of a constitutional amendment in the general election of 1 February 1972 gave the State of Louisiana and its agencies authority to comply with the Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970 (PL 91-646). Supplemental assurances covering the requirements of PL 91-646 for the Larto Lake to Jonesville Area were received 9 May 1972 and accepted 25 May 1972. Supplemental assurances covering the requirements of PL 91-646 for the Tensas-Cocodrie Levee Enlargement were received 1 February 1974 and accepted 7 February 1974. Supplemental assurances covering the requirements of PL 91-646 for the Tensas-Cocodrie Pumping Plant were received 18 August 1975 and accepted 27 August 1975.

Tensas River and Below Red River Areas

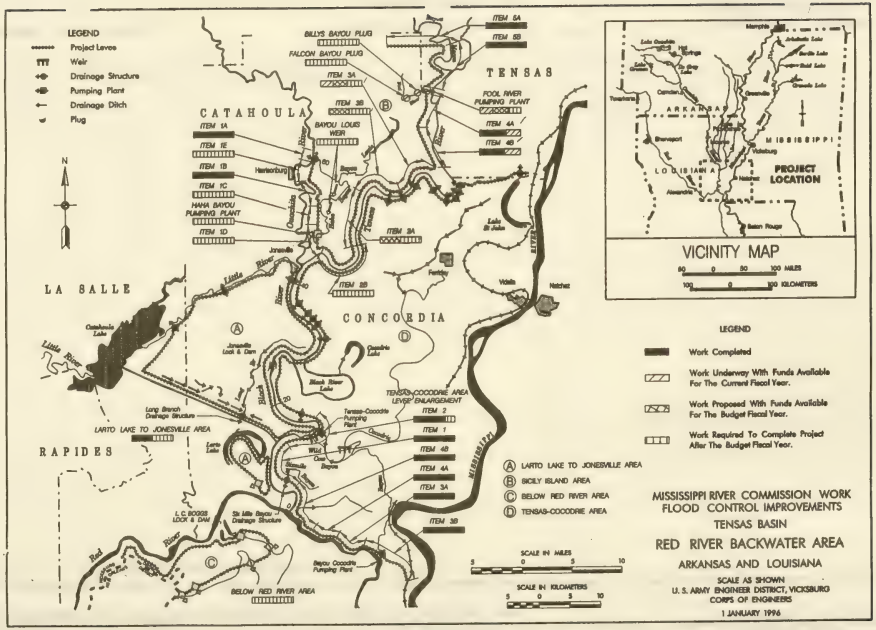
Project Cooperation Agreements for the Tensas River and Below Red River separable elements will be obtained consistent with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986. The local sponsor for the Tensas River and the Below Red River elements is the Fifth Louisiana Levee District. A draft Project Cooperation Agreement was sent to the local sponsor 2 May 1988 for revisw. The local sponsor indicated in October 1988 that they are unable to cost share these elements in accordance with the Water Resources Development Act of 1986. By resolution dated 15 November 1989, the Levee District has requested the East Carroll and Madison Parish Police Juries to cosponsor this project. However, no formal agreement was received from either police jury; therefore, the Tensas River separable element and the Below Red River separable element were placed in the inactive category.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $475,998,000 is a decrease of $2,002,000 from the latest estimate ($478,000,000) presented to Congress (Fiscal Year 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$-1,904,000
Price Escalation on Real Estate Features	- 98,000
Total	$-2,002,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency on Tensas River, LA, on 18 May 1984; Lake Chicot Pumping Plant on 29 August 1975; and the Red River Backwater Area, Sicily Island Area, on 21 May 1982; Below Red River Area on 30 October 1981; Tensas-Cocodrie Pumping Plant on 24 September 1976; and Tensas-Cocodrie Levee Item on 24 September 1976.

OTHER INFORMATION: Funds to initiate construction were appropriated in Fiscal Year 1947 on Red River Backwater Area and in Fiscal Year 1948 on Boeuf and Tensas River, etc.


LEGEND
Project Levee
Weir
Drainage Structure
Pumping Plant
Drainage Ditch
Plug
N
CATAHOULA
TENSAS
LA SALLE
CONCORDIA
RAPIDES
BILLY'S BAYOU PLUG
FALCON BAYOU PLUG
ITEM 5A
ITEM 5B
ITEM 3A
ITEM 3B
POOL RIVER PUMPING PLANT
ITEM 4A
ITEM 4B
BAYOU LOUIS WEIR
ITEM 1A
ITEM 1E
ITEM 1B
ITEM 1C
MAHA BAYOU PUMPING PLANT
ITEM 1D
Harrisonburg
Jonesville
ITEM 3A
ITEM 3B
Lake St John
Ferriday
Vidalia
Natchez
Catahoula Lake
Little River
Jonesville Lock & Dam
Black River Lake
TENSAS-COCODRIE AREA LEVEE ENLARGEMENT
ITEM 2
ITEM 1
ITEM 4B
ITEM 4A
ITEM 3A
ITEM 3B
Tensas-Cocodrie Pumping Plant
Long Branch Drainage Structure
LARTO LAKE TO JONESVILLE AREA
Larto Lake
Wild Cow Bayou
L. C. BOGGS LOCK & DAM
Six Mile Bayou Drainage Structure
Bayou Cocodrie Pumping Plant
BELOW RED RIVER AREA
Red River
MISSISSIPPI RIVER
Ⓐ LARTO LAKE TO JONESVILLE AREA
Ⓑ SICILY ISLAND AREA
Ⓒ BELOW RED RIVER AREA
Ⓓ TENSAS-COCODRIE AREA
SCALE IN MILES
5 0 5 10
SCALE IN KILOMETERS
5 0 5 10
Memphis
Arkansas
Louisiana
Mississippi
Shreveport
Vicksburg
Natchez
Alexandria
Baton Rouge
PROJECT LOCATION
VICINITY MAP
50 0 50 100 MILES
100 0 100 KILOMETERS
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
MISSISSIPPI RIVER COMMISSION WORK
FLOOD CONTROL IMPROVEMENTS
TENSAS BASIN
RED RIVER BACKWATER AREA
ARKANSAS AND LOUISIANA
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO and TN - Construction

PROJECT: Whiteman's Creek, Arkansas - (Continuing)

LOCATION: The project is located in Craighead County in northeast Arkansas approximately 50 miles northwest of Memphis, Tennessee.

DESCRIPTION: The recommended plan of improvement consists of 6.1 miles of channel improvement within the city limits of Jonesboro, Arkansas. The plan includes channel enlargement on 2.95 miles of Higginbottom Creek; 0.72 miles of Moore's Ditch; 0.92 miles of Turtle Creek and 1.5 miles of channel enlargement and clearing and snagging on Whiteman's Creek. This plan of improvement would provide approximately a 25-year level of protection along Higginbottom Creek and a 10-year level of protection along Moore's, Turtle and Whiteman's Creeks. All work is programmed.

AUTHORIZATION: The project was authorized in the Water Resources Development Act of 1992.

REMAINING BENEFIT - REMAINING COST RATIO: 6.4 to 1 at 8-1/2 percent.

TOTAL BENEFIT-COST RATIO: 2.2 to 1 at 8-1/2 percent.

INITIAL BENEFIT-COST RATIO: 3.3 to 1 at 8-1/2 percent (Fiscal Year 1994).

BASIS OF BENEFIT-COST RATIO: Benefits are from the Whiteman's Creek, Arkansas, feasibility report approved in April 1992 at 1991 price levels.

SUMMARIZED FINANCIAL DATA				STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost			$3,300,000			
Programmed Construction		$3,300,000		Entire Project	0	Being Determined
Unprogrammed Construction		0				
Estimated Non-Federal Cost			2,520,000			
Programmed Construction		2,520,000				
Cash Contributions	$ 291,000					
Other Costs	2,229,000					
Estimated Non-Federal Cost						
Unprogrammed Construction		0				

		ACCUM. PCT. OF EST. FED COST
Total Estimated Programmed Construction	5,820,000	
Total Estimated Unprogrammed Construction	0	
Total Estimated Project Cost	5,820,000	
Allocations to 30 September 1995	544,000	
Conference Allowance for FY 1996	850,000	
Allocation for FY 1996	325,000[1]	
Allocation through FY 1996	869,000	26
Allocation Requested for FY 1997	1,000,000	57
Programmed Balance to Complete after FY 1997	1,431,000	
Unprogrammed Balance to Complete after FY 1997	0	

PHYSICAL DATA

Lands and Damages:	
Commercial/residential	116 acres
Transitional	10 acres
Channel Easement	51 acres
Relocations:	
Bridges	2
Utilities	50 facilities
Channels	6.1 miles

JUSTIFICATION: The Whiteman's Creek, Arkansas, project provides drainage primarily for the City of Jonesboro, Arkansas. The project will reduce flooding in the urban area of Jonesboro and on some agricultural land on the edge of city limits. The project will provide a 10-year level of protection along Whiteman's Creek, Turtle Creek and Moore's Ditch. Improvements along Higginbottom Creek will provide a 25-year level of protection.

Flooding impacts residential and non - residential structures and contents with a present value of $184 million (1995 price level). Average annual damages for such properties with and without project conditions are $698,000 and $1,849,000 (October 1995 price level), respectively. Flooding has occurred to some extent on virtually an annual basis over the recent past. Major floods occurred in 1969, 1980, 1983 and 1988. In addition to damages to property, disruption of vehicular traffic and the threat of injury or loss of life; flood occurrences continue to have a detrimental effect on the quality of life in the basin. The plan of improvement addresses the need for flood damage reduction without significant detriment to the natural environment. Average annual benefits, all for flood control, are $1,153,000.

[1] Reflects $96,000 reduction assigned as savings and slippage; and $429,000 reprogrammed from the project.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate:	
Item 2 - Turtle & Whiteman's Creek	$ 322,000
Continue:	
Item 1 - Higginbottom & Moore's Creek	$ 432,000
Cultural Resources	17,000
Planning, Engineering & Design	129,000
Supervision and Administration	100,000
Total	$1,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$1,287,000	
Modify or relocate, utilities, roads, bridges (except railroad bridges), and other facilities where necessary for the construction of the project.	942,000	
Pay 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	291,000	$1,000
Total Non-Federal Costs	$2,520,000	$1,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

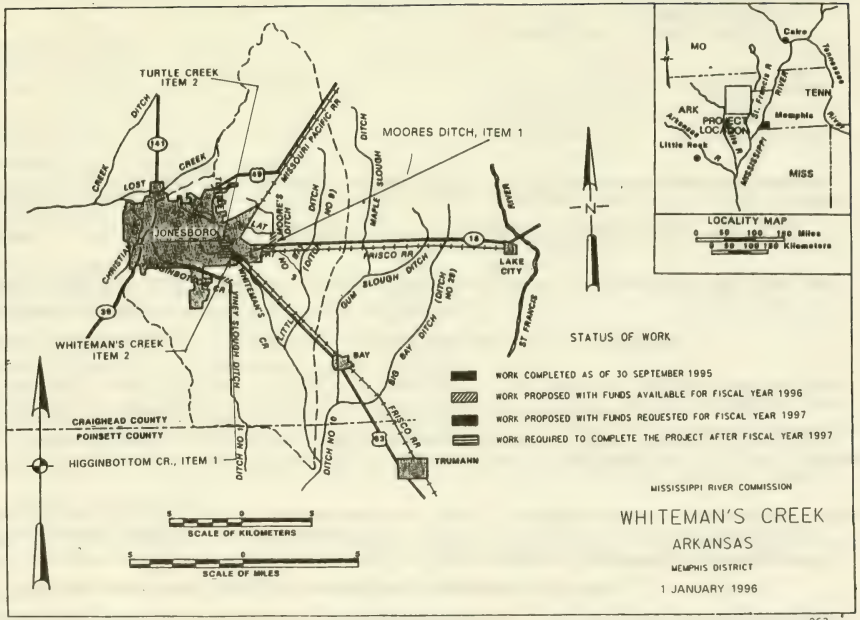
STATUS OF LOCAL COOPERATION: Local interests in Craighead County, the City of Jonesboro, Arkansas State University and local drainage districts have expressed interest in the project. The City of Jonesboro has agreed to act as the project sponsor with attendant legal and financial capability. The City of Jonesboro is working to complete acquisition of lands, easements, an rights-of-way at their own risk before executing the Project Cooperation Agreement. The Project Cooperation Agreement is scheduled for execution in May 1996.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $3,300,000 is a decrease of $40,000 from the latest estimate ($3,340,000) presented to Congress (Fiscal Year 1996). This change includes the following items:

Item	Amount
Post Contract Award and Other Estimating Adjustments	-$ 40,000
Total	-$ 40,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An environment assessment was completed as a part of the March 1992 feasibility report. Environmental impacts of this project will be minimal because construction will be completed within the already highly developed city limits.

OTHER INFORMATION: Funds to initiate Preconstruction Engineering and Design were appropriated in Fiscal Year 1990, and funds to initiate construction were appropriated in Fiscal Year 1994.


TURTLE CREEK
ITEM 2
MOORES DITCH, ITEM 1
JONESBORO
LAKE CITY
BAY
TRUMANN
WHITEMAN'S CREEK
ITEM 2
HIGGINBOTTOM CR., ITEM 1
CRAIGHEAD COUNTY
POINSETT COUNTY
MISSOURI PACIFIC RR
MISCO RR
GUM SLOUGH DITCH
BIG BAY DITCH (DITCH NO 28)
WHITEMAN'S CR
LITTLE WHITEMAN'S CR
DITCH NO 9
DITCH NO 10
DITCH NO 28
MAPLE SLOUGH
MOORE'S DITCH
LOST CREEK
CHRISTIAN CREEK
DITCH
MERAN
ST FRANCIS
SCALE OF KILOMETERS
SCALE OF MILES
STATUS OF WORK
WORK COMPLETED AS OF 30 SEPTEMBER 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FISCAL YEAR 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997
MISSISSIPPI RIVER COMMISSION
WHITEMAN'S CREEK
ARKANSAS
MEMPHIS DISTRICT
1 JANUARY 1996
LOCALITY MAP
MO
TENN
ARK
MISS
Cairo
Memphis
Little Rock
PROJECT LOCATION
MISSISSIPPI RIVER
ST FRANCIS R
Tennessee River
Arkansas R
White R

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN - Construction

PROJECT: Mississippi Delta Region, Louisiana (Salinity Control Structures) (Continuing)

LOCATION: The project is located in the lower Mississippi River delta region in Plaquemines and St. Charles Parishes, Louisiana. The Caernarvon structure is located in Plaquemines Parish on the east bank of the Mississippi River in the vicinity of Caernarvon, Louisiana. The Davis Pond structure is located in St. Charles Parish on the west bank just downstream of Luling, Louisiana. The two remaining structures, located in Plaquemines Parish, are Homeplace on the west bank, and Bohemia on the east bank.

DESCRIPTION: The plan of improvement consists of four salinity control structures (Caernarvon, Davis Pond, Homeplace, and Bohemia) with appurtenant levees and channels, to divert freshwater from the Mississippi River into coastal bays and marshes for fish and wildlife restoration. The Caernarvon and Davis Pond salinity control structures are programmed, including post construction environmental monitoring which will continue for four years after completion of construction of each structure. The Homeplace and Bohemia salinity control structures are unprogrammed pending a decision to initiate construction. The Homeplace and Bohemia structures were included on a list of projects and separable elements eligible for deauthorization submitted to Congress on 31 October 1994. Without additional funding, or continuation by law, Bohemia and Homeplace will be automatically deauthorized on 1 May 1997.

AUTHORIZATION: Flood Control Act of 1965, and Water Resources Development Acts of 1974 and 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 4.7 to 1 at 8-7/8 percent.

TOTAL BENEFIT - COST RATIO: 2.8 to 1 at 3-1/4 percent for Bohemia and Caernarvon, 8-7/8 percent for Davis Pond, and 8-1/2 per cent for Homeplace.

INITIAL BENEFIT - COST RATIO: 3.4 to 1 at 3-1/4 percent for Caernarvon and Bohemia (Fiscal Year 1969), 3.0 to 1 at 8-1/8 percent for Davis Pond (Fiscal Year 1983), and 1.5 to 1 at 8-5/8 percent for Homeplace (Fiscal Year 1985).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluations: Caernarvon - approved in November 1985, at 1985 price levels; Davis Pond - approved in September 1992 at 1990 price levels; and Bohemia and Homeplace - approved in April 1962, at 1959 price levels.

SUMMARIZED FINANCIAL DATA			
Estimated Federal Cost		$93,700,000	
Programmed Construction	$80,158,000[1]		
Unprogrammed Construction	13,542,000		
Estimated Non-Federal Cost		31,200,000	
Programmed Construction	26,700,000		
Cash Contribution	$23,256,000		
Other Costs	3,444,000		
Estimated Non-Federal Cost			
Unprogrammed Construction	4,500,000		
Cash Contribution	4,500,000		
Other Costs	0		
Total Estimated Programmed Construction Cost		106,858,000	
Total Estimated Unprogrammed Construction Cost		18,042,000	
Total Estimated Project Cost		124,900,000	
Allocations to 30 September 1995		33,097,520	
Conference Allowance for FY 1996		13,300,000	
Allocation for FY 1996		11,296,000[2]	
Allocations through FY 1996		44,393,520	47
Allocation Requested for FY 1997		11,800,000	60
Programmed Balance to Complete after FY 1997		23,964,480	
Unprogrammed Balance to Complete after FY 1997		13,542,000	

STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Caernarvon Structure	100	September 1995
Davis Pond Structure	0	Being Determined
Homeplace Structure	0	Indefinite
Bohemia Structure	0	Indefinite
Entire Project	24	Being Determined[3]

ACCUM. PCT. OF EST. FED. COST

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[1] Includes $58,000 expended on Bohemia prior to 1970.

[2] Reflects $1,504,000 reduction assigned as savings and slippage, and $500,000 reprogrammed from the project.

[3] For programmed work only; remaining work is unprogrammed pending a decision to construct these features or deauthorization.

PHYSICAL DATA

	Bohemia	Caernarvon	Davis Pond	Homeplace
Lands and Damages	2,610 acres	2,092 acres	10,213 acres	690 acres
Relocations				
Roads/Bridges	None	1,600 linear feet	2,920 linear feet	1,280 linear feet
Railroads	None	2,500 linear feet	3,600 linear feet	None
Utilities	None	4,600 linear feet	7,980 linear feet	3,680 linear feet
Fish & Wildlife Facilities				
Structures	2 tainter gates 10 feet by 30 feet 4,400 cubic feet per second	5 box culverts 15 feet by 15 feet 8,000 cubic feet per second	4 box culverts 14 feet by 14 feet 10,650 cubic feet per second	2 tainter gates 13 feet by 30 feet 4,300 cubic feet per second
Pumping Stations			1 pumping station	
Channels	5 miles	1.7 miles	2.2 miles	2 miles
Levees	10 miles	3.7 miles	16.9 miles	4 miles

JUSTIFICATION: The project will divert freshwater from the Mississippi River to coastal bays and marshes for fish and wildlife restoration. Benefits will include restoration of former ecological conditions by controlling salinity and supplementing nutrients. The bays are important to oyster production and as breeding areas for shrimp and food fishes, while the marsh areas produce natural food for fur-bearing animals and migratory waterfowl. A total of 981,500 acres of marshes and bays will be benefitted. The diversions will take place under regulated conditions developed from monitoring the impact on the environment and the fish and wildlife. Average annual benefits are as follows:

Annual Benefits	Amount
Fish and Wildlife	
Caernarvon	$ 8,706,000
Davis Pond	14,997,000
Homeplace	1,632,000
Bohemia	812,000
Recreation	
Caernarvon	449,000
Davis Pond	298,000
Total	$26,894,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Davis Pond

Initiate:	
East Guide Levee & Rock Weir	$ 900,000
West Guide Levee, Sta. 156 & 490	800,000
Southern Pacific Railroad Bridge Relocation	1,500,000
Continue:	
US Hwy 90 Relocation	1,594,000
Diversion Structure	2,755,000
Pumping Station	2,140,000
Complete:	
Utility Relocations	1,171,000
Planning, Engineering, and Design	100,000
Supervision and Administration	840,000
Total	$11,800,000

NON-FEDERAL COST: Based on the cost sharing concept adopted for the Caernarvon Structure, the non-Federal sponsor will voluntarily contribute 25 percent of the first cost of the project as well as the required 25 percent of the cost of operating, maintaining, repairing, rehabilitating, and replacing the project after completion.

	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Requirements of Local Cooperation		
Contribute 25 percent of the costs allocated to fish and wildlife restoration and pay 25 percent of the costs of operation, maintenance, repair, rehabilitation, and replacement of fish and wildlife facilities.		
Davis Pond	$20,200,000	$ 82,000
Bohemia	1,600,000	27,000
Homeplace	2,900,000	52,000
Caernarvon	6,500,000	69,000
Total Non-Federal Costs	$31,200,000	$230,000

The non-Federal sponsor for the Caernarvon and Davis Pond Structures has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The Project Cooperation Agreement for the Caernarvon Structure was signed by the State of Louisiana on 2 June 1987 and by the Assistant Secretary of the Army for Civil Works on 10 June 1987. The current non-Federal cost estimate of $6,500,000, which includes a cash contribution of $5,533,000, is an increase of $375,000 from the non-Federal cost estimate of $6,125,000 noted in the Project Cooperation Agreement, which included a cash contribution of $6,125,000. In a letter dated 26 February 1987, the non-Federal sponsor indicated that it is financially capable and willing to contribute the increased non-Federal share. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment. The State of Louisiana has provided cash contributions of $5,432,000 through 30 September 1995 for the Caernarvon Structure. The State has also performed biological monitoring, with an estimated value of $1,044,000.

The Project Cooperation Agreement for the Davis Pond Structure was signed 17 April 1993, by the State of Louisiana and for the Acting Assistant Secretary of the Army. The State of Louisiana plans to fund both the construction, and the operations and maintenance of the project through the Wetlands Conservation and Restoration Trust Fund. Our recent analysis of the non-Federal sponsor's financial capability affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment. The State of Louisiana has provided cash contributions of $7,833,240 through 31 December 1995, for the Davis Pond Structure.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $93,700,000 is an increase of $900,000 from the latest estimate ($92,800,000) submitted to Congress (Fiscal Year 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 669,000
Post Contract Award and Other Estimating Adjustments	231,000
Total	$ 900,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement for the Louisiana Coastal Area Study was filed with the Environmental Protection Agency on 5 April 1985. This statement is adequate for the Caernarvon and Davis Pond structures.

OTHER INFORMATION: Local interests, during the period 1954-1970, spent an estimated $420,000 for construction and maintenance of freshwater diversion structures and channel improvements on the east bank of the Mississippi River in the vicinity of Bohemia and Bayou Lamoque.

Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1969 and funds to initiate construction were appropriated in Fiscal Year 1987.

SUMMARIZED FINANCIAL DATA:

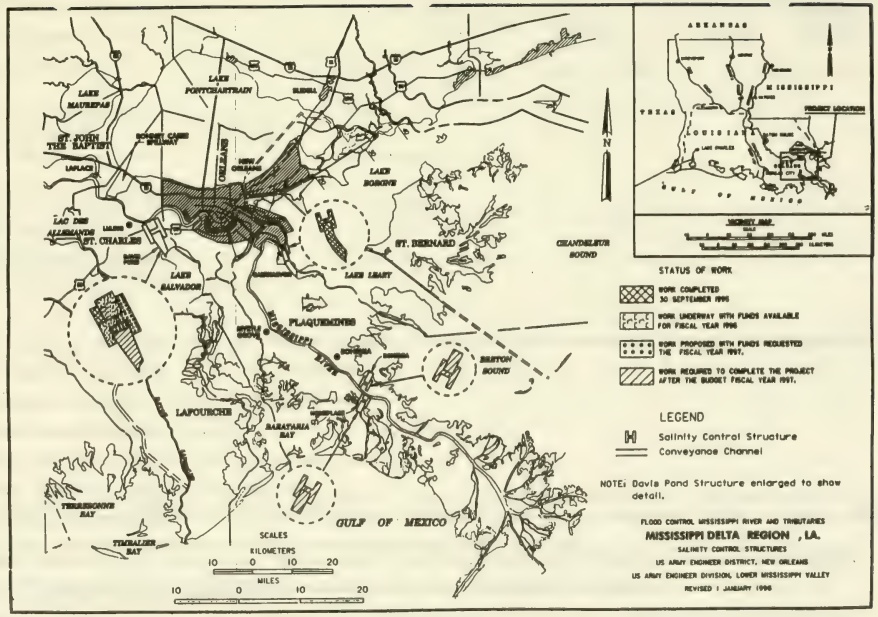
Davis Pond:		
Estimated Federal Cost		$60,700,000
Estimated Non-Federal Cost		20,200,000
Cash Contributions	$17,800,000	
Other Costs	2,400,000	
Total Estimated Project Cost		$80,900,000
Caernarvon:		
Estimated Federal Cost		$19,400,000
Estimated Non-Federal Cost		6,500,000
Cash Contributions	$ 5,456,000	
Other Costs	1,044,000	
Total Estimated Project Cost		$25,900,000

REMAINING BENEFIT - REMAINING COST RATIO:

Davis Pond: 4.7 to 1 at 8-7/8 percent.
Caernarvon: Not applicable because construction is complete.

TOTAL BENEFIT - COST RATIO:

Davis Pond: 2.2 to 1 at 8-7/8 percent.
Caernarvon: 6.4 to 1 at 3-1/4 percent.


LAKE MAUREPAS
ST. JOHN THE BAPTIST
LAPLACE
LAKE PONTCHARTRAIN
SLIDELL
NEW ORLEANS
LAKE BORGNE
LAC DES ALLEMANDS
ST. CHARLES
LAKE SALVADOR
ST. BERNARD
LAKE LEAHY
CHANDELEUR SOUND
PLAQUEMINES
BRETON SOUND
LAFOURCHE
BARATARIA BAY
TERREBONNE BAY
TIMBALIER BAY
GULF OF MEXICO
SCALES
KILOMETERS
MILES
ARKANSAS
MISSISSIPPI
TEXAS
LOUISIANA
PROJECT LOCATION
VICINITY MAP
STATUS OF WORK
WORK COMPLETED 30 SEPTEMBER 1996
WORK UNDERWAY WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996
WORK PROPOSED WITH FUNDS REQUESTED THE FISCAL YEAR 1997.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR 1997.
LEGEND
Salinity Control Structure
Conveyance Channel
NOTE: Davis Pond Structure enlarged to show detail.
FLOOD CONTROL MISSISSIPPI RIVER AND TRIBUTARIES
MISSISSIPPI DELTA REGION, LA.
SALINITY CONTROL STRUCTURES
US ARMY ENGINEER DISTRICT, NEW ORLEANS
US ARMY ENGINEER DIVISION, LOWER MISSISSIPPI VALLEY
REVISED 1 JANUARY 1996

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN - Construction

PROJECT: Mississippi and Louisiana Estuarine Areas, Mississippi and Louisiana (Continuing)

LOCATION: The project is located in St. Charles Parish, Louisiana about 33 miles upstream of the City of New Orleans, Louisiana, at the upstream end of the Bonnet Carre' spillway structure.

DESCRIPTION: The project plan consists of box culverts with associated inflow and outflow channels designed to divert water from the Mississippi River into Lake Pontchartrain. A sediment trap will be located 2,300 feet downstream from the diversion structure. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1988.

REMAINING BENEFIT-REMAINING COST RATIO: 1.5 to 1 at 8-7/8 percent.

TOTAL BENEFIT-COST RATIO: 1.2 to 1 at 8-7/8 percent.

INITIAL BENEFIT-COST RATIO: 1.2 to 1 at 8-5/8 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in February 1991, at 1990 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$59,000,000		Entire Project	0	Being Determined
Estimated Non-Federal Cost		22,100,000				
Cash Contribution	$19,600,000					
Other Costs[1]	2,500,000					
Total Estimated Project Cost		$81,100,000				
Allocations to 30 September 1995		6,433,000				
Conference Allowance for FY 1996		1,500,000				
Allocation for FY 1996		500,000 [2]				
Allocations through FY 1996		6,933,000	12			
Allocation Requested for FY 1997		800,000	13			
Programmed Balance to Complete after FY 1997		51,267,000				
Unprogrammed Balance to Complete after FY 1997		0				

[1] Not creditable to the State's share of the project costs since utility relocations are the responsibility of the utility owners.

[2] Reflects $170,000 reduction assigned as savings and slippage and $525,000 reprogrammed from the project and $305,000 pending reprogramming from the project.

PHYSICAL DATA

Relocations:	
Roads and Bridges	U.S. Highway 61 bridge and LA Parish Road 12
Railroads	2 Railroad Bridges
Utilities	2 Power lines, 9 pipelines, 1 waterline, 4 fiber optic cables
Fish and Wildlife Facilities:	6 box culverts 18 feet by 18 feet 30,000 cubic feet per second
Channels:	6.0 miles with a depth of about 30 feet.
Levees:	0.4 miles

JUSTIFICATION: The productivity of fish and wildlife is being adversely affected by wetland loss. The natural processes of subsidence, compaction, erosion, and saltwater intrusion, which have been accelerated by channel dredging and levee building are major contributors to the land loss. The project area includes Lakes Maurepas, Pontchartrain, and Borgne, Mississippi Sound and adjacent wetlands that are influenced by these water bodies. The estuaries and wetlands, which are among the most productive in the nation in terms of fish and wildlife resources, make a significant contribution to the overall economies of Louisiana and Mississippi. Historically, a large portion of Louisiana's $500 million and Mississippi's $68 million commercial fish and wildlife harvests have been from the project area. The contribution that the project area makes to commercial fish and wildlife harvest has declined due to increased salinities and land loss. The project would reduce saltwater intrusion and significantly increase the production of oyster, white shrimp, blue crabs, croakers and menhaden.

About 10,500 acres of marsh and wooded swamps adjacent to Lakes Maurepas and Pontchartrain would be saved over the 50-year project life since the freshwater nutrients and sediments would result in a healthier marsh and reduce land loss. Oyster production is estimated to be increased by 5.7 million pounds annually in Louisiana and 1.9 million pounds annually in Mississippi. The average annual benefits, all commercial fish and wildlife enhancement, resulting from environmental restoration, are $9,123,000.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Planning, Engineering and Design	$ 800,000
Total	$ 800,000

FEDERAL COST: Based on the cost sharing concept adopted for similar projects, the non-Federal sponsor will contribute 25 percent of the first cost of the project, as well as the required 25 percent of operating, maintaining, repairing, rehabilitating, and replacing the project after completion. The non-Federal costs will be shared between the states of Louisiana (20 percent) and Mississippi (5 percent), based on the estimated benefits to accrue to each state.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Pay 25 percent of the first costs allocated to fish and wildlife restoration, and pay 25 percent of the costs of operation, maintenance, repair, rehabilitation, and replacement of fish and wildlife facilities.	$19,000,000	$232,000
Total Non-Federal Costs	$19,000,000	$232,000

23-577 O - 96 - 11

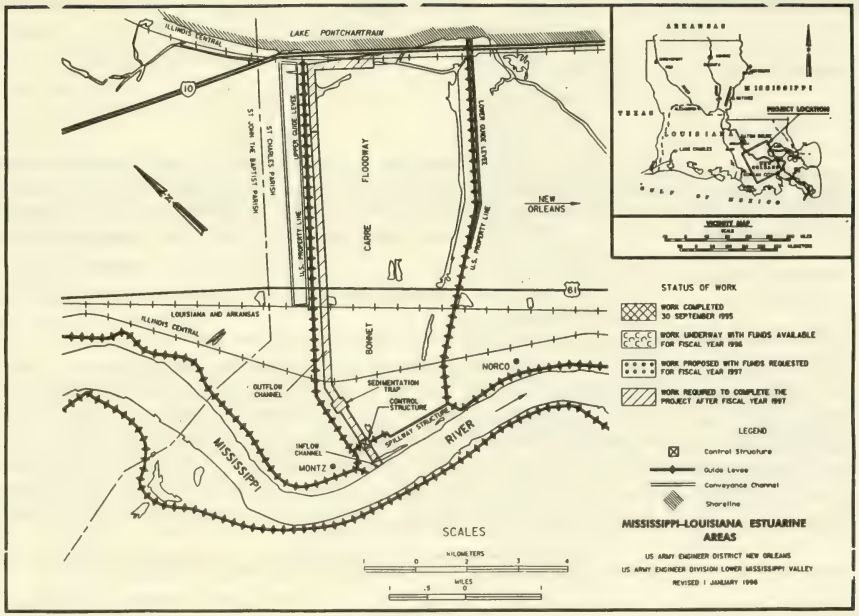
STATUS OF LOCAL COOPERATION: The basis of negotiations of the Project Cooperation Agreement with the local sponsors since November 1987 has been similar to terms of the one approved for the Mississippi Delta Region, Louisiana project's Caernarvon Freshwater Diversion structure, whereby the local sponsor voluntarily pays 25 percent of project first costs along with a mandatory 25 percent of operation and maintenance and rehabilitation of fish and wildlife facilities. The negotiated Project Cooperation Agreement, including Louisiana and Mississippi's letters of intent and their respective financing plans and statements of financial capability were submitted to higher authority on 21 June 1991. However, in a letter dated 13 July 1992, the Governor of Louisiana transferred the project responsibility from the Department of Natural Resources to the Department of Wildlife and Fisheries, requiring renegotiation of the Project Cooperation Agreement. By letter dated 6 November 1995, the Governor of Louisiana transferred the project responsibility back to the Department of Natural Resources. The State of Louisiana intends to finance ten percent of the construction cost out of the state's Wetlands Conservation and Restoration Trust Fund. The remaining construction and operation and maintenance costs will be paid out of the State's capital outlay budget. The State of Mississippi will fund $4,000,000 of the project costs using the proceeds of a bond sale authorized in 1989 and 1993. The remaining operation and maintenance expenditures will be paid out of state appropriations. The Project Cooperation Agreement between the Federal Government and the States of Louisiana and Mississippi is scheduled to be executed in June 1996.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $59,000,000 is an increase of $1,800,000 from the latest estimate ($57,200,000) presented to Congress (Fiscal Year 1996). This change includes the following item.

Item	Amount
Price Escalation on Construction Features	+ $1,800,000
Total	+ $1,800,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency on 27 April 1985.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1985, and funds to initiate construction were appropriated in Fiscal Year 1990.


LAKE PONTCHARTRAIN
ILLINOIS CENTRAL
10
ST. CHARLES PARISH
ST. JOHN THE BAPTIST PARISH
EAST BANK LEVEE
WEST BANK LEVEE
FLOODWAY
CAORE
BONNET
LIMITED GUIDE LEVEE
U.S. PROPERTY LINE
NEW ORLEANS
61
LOUISIANA AND ARKANSAS
ILLINOIS CENTRAL
NORCO
OUTFLOW CHANNEL
SEDIMENTATION TRAP
CONTROL STRUCTURE
SPILLWAY STRUCTURE
INFLOW CHANNEL
MONTZ
MISSISSIPPI
RIVER
SCALES
KILOMETERS
MILES
ARKANSAS
MISSISSIPPI
TEXAS
LOUISIANA
PROJECT LOCATION
GULF OF MEXICO
VICINITY MAP
STATUS OF WORK
WORK COMPLETED 30 SEPTEMBER 1995
WORK UNDERWAY WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FISCAL YEAR 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997
LEGEND
Control Structure
Guide Levee
Conveyance Channel
Shoreline
MISSISSIPPI-LOUISIANA ESTUARINE AREAS
US ARMY ENGINEER DISTRICT NEW ORLEANS
US ARMY ENGINEER DIVISION LOWER MISSISSIPPI VALLEY
REVISED 1 JANUARY 1996

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN - Construction

PROJECT: Yazoo Basin, Mississippi (Continuing)

LOCATION: The project is located in Mississippi and extends generally from Memphis, Tennessee, southward to Vicksburg, Mississippi, and from the escarpment at Greenwood, westward to the Mississippi River.

DESCRIPTION: The project provides for protection against headwater floods of streams in the basin; against backwater floods of the Mississippi; and for major drainage in the delta area. The Yazoo Basin can be readily divided into three major flood control components (the Yazoo Headwater, the Yazoo Backwater, and the Big Sunflower River, Etc., Including Steele Bayou), the Streambank Erosion Control Evaluation and Demonstration Program, which has been completed, and the Demonstration Erosion Control Program. All of the work in the project is programmed except for remaining recreation facilities at Grenada Lake pending development of cost sharing agreements with local interests for construction and non-Federal operation and maintenance consistent with projects for which recreation facilities are being constructed under the provisions of the Federal Water Project Recreation Act of 1965 (Public Law 89-72), as amended; remaining work on Rocky Bayou pending a decision to continue construction in accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986; and remaining work on the Yazoo Backwater Pumping Plant pending development of cost sharing agreements with local interests for construction and non-Federal operation and maintenance in accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986.

AUTHORIZATION: Flood Control Acts of 1936, 1937, 1938, 1941, 1944, 1946, 1950, 1962, 1965, and the Water Resources Development Acts of 1974 and 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 3.2 to 1 at 2-1/2 percent.

TOTAL BENEFIT-COST RATIO: 4.6 to 1 at 2-1/2 percent.

INITIAL BENEFIT-COST RATIO: 2.1 to 1 at 2-1/2 percent (Fiscal Year 1967).

BASIS OF BENEFIT-COST RATIO: Benefits and costs for the Yazoo Backwater Pumping Plant are from the latest evaluation approved in July 1983 at 1974 price levels. Benefits for the remaining features of the Yazoo Basin project are based on "Upper Steele Bayou Project Reformulation Study," December 1992; and "Upper Yazoo Projects Reformulation Study," December 1993. Costs are based on October 1995 costs deflated to 1974 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$1,629,544,000
Programmed Construction	$ 1,532,295,000	
Unprogrammed Construction	97,249,000	
Estimated Non-Federal Cost		30,715,000
Programmed Construction	914,000	
Cash Contribution	830,000	
Other Costs	84,000	
Estimated Non-Federal Cost		
Unprogrammed Construction	29,801,000	
Cash Contribution	24,403,000	
Other Costs	5,398,000	
Total Estimated Programmed Construction Cost		1,533,209,000
Total Estimated Unprogrammed Construction Cost		127,050,000
Total Estimated Project Cost		1,660,259,000

STATUS (1 January 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Yazoo City	100	--
Belzoni	100	--
Will M. Whittington Auxiliary Channel	99	Being Determined
Sardis Lake	100	--
Arkabutla Lake	100	--
Enid Lake	100	--
Grenada Lake	98	Indefinite
Greenwood	100	--
Streambank Erosion Control Evaluation and Demonstration	100	--
Upper Yazoo Projects	23	Being Determined
Main Stem	73	Being Determined
Tributaries	62	Being Determined
All Work Except Ascalmore-Tippo and Opossum Bayous	62	Being Determined
Ascalmore-Tippo and Opossum Bayous	71	Being Determined
Demonstration Erosion Control	99	September 1997
Big Sunflower River, Etc., Including Steele Bayou	62	Being Determined

SUMMARIZED FINANCIAL DATA

		ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1995	$ 761,185,000	
Conference Allowance for FY 1996	47,928,000	
Allocation for FY 1996	43,670,000 1/	
Allocations through FY 1996	804,855,000	49
Allocation Requested for FY 1997	33,164,000	51
Programmed Balance to Complete after FY 1997	694,276,000	
Unprogrammed Balance to Complete after FY 1997	97,249,000	

1/ Reflects $5,415,000 reduction for savings and slippage and $1,157,000 reprogrammed to the project.

STATUS (1 January 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Yazoo Backwater	23	Being Determined
Yazoo Backwater Including Muddy Bayou Control Structure	51	Being Determined
Rocky Bayou Separable Element	27	Indefinite
Backwater Pumping Plant Separable Element	5	Indefinite
Yazoo Backwater Mitigation Separable Element	66	Being Determined
Reformulation Study	59	Being Determined
Entire Project	65	Being Determined

PHYSICAL DATA

Yazoo City:
- Lands and Damages: 361 acres
- Relocations: 1.1 miles roads
- Levees: 4.1 miles
- Channels: 1.6 miles
- Pumping Plant: 1 - 540 cubic feet per second

Belzoni:
- Lands and Damages: 3.3 acres
- Levees: 0.6-mile levee and 0.5-mile floodwall

Will M. Whittington Auxiliary Channel:
- Lands and Damages: 11,996 acres
- Relocations:
  - Roads: 3.0 miles and 12 bridges
  - Railroads: 0.4 mile and 1 bridge
- Fish and Wildlife Facilities:
  - 1 water control structure
- Channels: 30.8 miles
- Levees: 61.3 miles

Sardis Lake:
Lands and Damages: 98,584 acres
Relocations:
Roads: 3.2 miles and 1 bridge
Railroads: 3.2 miles and 1 bridge
Reservoir: 58,500-acre pool area
Dam: Earthfill, 15,300 feet long; 97 feet average height
Roads, Railroads, and Bridges: 7.6 miles roads and 8 bridges
Recreation Facilities: 19 sites
Buildings: 4

Arkabutla Lake:
Lands and Damages: 52,629 acres
Relocations:
Roads: 5.5 miles and 5 bridges
Railroads: 5.8 miles and 2 bridges
Reservoir: 33,400-acre pool area
Dam: Earthfill, 11,500 feet long; 67 feet average height
Roads: 4 miles
Channel and Canals: 1.5 miles
Recreation Facilities: 11 sites
Buildings: 4

Enid Lake:
Lands and Damages: 43,870 acres
Relocations:
Roads: 19.1 miles and 9 bridges
Reservoir: 28,000-acre pool area
Dam: Earthfill, 8,400 feet long; 85 feet average height
Roads: 1 mile
Recreation Facilities: 10 sites
Buildings: 4

Grenada Lake:
Lands and Damages: 90,356 acres
Relocations:
Roads: 83.2 miles and 47 bridges
Railroads: 21.6 miles and 21 bridges
Cemetery: 1
Reservoir: 64,600-acre pool area
Dam: Earthfill, 13,900 feet long; 80 feet average height
Roads: 4.5 miles and 1 bridge
Recreation Facilities: 20 sites
Buildings: 4

Greenwood:
Lands and Damages: 1,435 acres
Relocations:
Roads: 0.5 mile and 4 bridges
Bank Stabilization: 0.8 mile
Channels: Big Sand Creek Diversion (2.9 miles)
Levees and Floodwalls: 28.4 miles, height 4-6 feet
Pumping Plants: Storm Water: 3-capacity 67, 89, and 675 cubic feet per second

Upper Yazoo Projects:
Lands and Damages: 24,171 acres
Relocations:
Roads: 8.0 miles and 1 bridge
Utilities:
16 pipelines
20 power lines
9 telephone lines
Channels: 2 cutoffs, 197.4 miles; bottom width of 75 feet to 150 feet
Levees: 26.6 miles levees and 0.2-mile floodwall, average height 3.5 feet
Flood Control and Diversion Structure: One control structure with three 32-foot-wide gate bays, 66 water control structures, and 2 sedimentation structures
Bank Stabilization: 6.8 miles

Main Stem:
Lands and Damages: 16,560 acres
Relocations:
Roads: 28.9 miles and 10 bridges
Railroads: 1.2 miles
Channels: 43 cutoffs, 251 miles channel clearing and 21 miles channel enlargement (total miles 288.3)
Levees: 156.1 miles; variable height, 3 to 28 feet
Bank Stabilization: 1.8 miles

Tributaries:
All Work Except Ascalmore-Tippo and Opossum Bayous
Lands and Damages: 40,177 acres
Relocations:
Roads: 7.3 miles and 57 bridges
Railroads: 2.2 miles and 6 bridges
Channels: 442.6 miles
Levees: 147.8 miles, variable height, 3 to 25 feet
Pumping Plant: 1 storm water (McKinney Bayou) 250 cubic feet per second; 3 Pelucia Creek Pumping Plants, 75, 15, and 10 cubic feet per second
Bank Stabilization: 8.2 miles
9 Grade Control Structures

Ascalmore-Tippo and Opossum Bayous:
Lands and Damages: 2,601 acres
Relocations:
Roads: 11 bridges
Railroads: 1 bridge
Channels: 50.6 miles
Levees: 12.6 miles; average height 7 feet

Demonstration Erosion Control:

Abiaca Creek Watershed:	
Bank Stabilization	1.0 miles
Levees	12.0 miles
Major Grade Control Structures	2
Minor Grade Control Structures	9
Batupan Bogue Watershed:	
Bank Stabilization	15.4 miles
Major Grade Control Structures	29
Minor Grade Control Structures	42
Black Creek Watershed:	
Bank Stabilization	25.9 miles
Levees	1.5 miles
Floodwater Retarding Structures	2
Major Grade Control Structures	9
Minor Grade Control Structures	80
Burney Branch Watershed:	
Bank Stabilization	0.5 mile
Cane-Mussacuna Watershed:	
Minor Grade Control Structures	11
Coldwater River Watershed:	
Bank Stabilization	11.0 miles
Major Grade Control Structures	17
Minor Grade Control Structures	179
Hickahala-Senatobia Watershed:	
Bank Stabilization	2.8 miles
Channel Cleanout	13.9 miles
Major Grade Control Structures	28
Minor Grade Control Structures	48

Demonstration Erosion Control:

Hotophia Creek Watershed:	
Bank Stabilization	4.0 mile
Major Grade Control Structures	9
Minor Grade Control Structures	20
Hurricane-Wolf Watershed:	
Bank Stabilization	2.5 miles
Major Grade Control Structures	2
Minor Grade Control Structures	37
Long Creek Watershed:	
Bank Stabilization	6.0 miles
Major Grade Control Structures	10
Minor Grade Control Structures	11
Otoucalofa Creek Watershed:	
Bank Stabilization	2.7 miles
Channel Cleanout	7.2 miles
Major Grade Control Structures	5
Minor Grade Control Structures	17
Pelucia Creek Watershed:	
Major Grade Control Structures	1

Big Sunflower River, Etc., Including Steele Bayou:

Lands and Damages: 34,974 acres

Relocations:

Roads: 2.0 miles and 68 bridges

Railroads: 1 bridge

Fish and Wildlife Facilities: 9 water control structures

Big Sunflower River, Etc., Including Steele Bayou:

Channels: (miles)

Big Sunflower River	216
Quiver River	81
Steele Bayou	100
Deer Creek	7
Bogue Phalia	95
Little Sunflower River	28
Hushpuckena River	28
Tributaries	172
Gin and Muddy Bayous	12.3
Total	739.3

1 channel weir

Levees: 9.0 miles, average height 7 feet; 4 gated culverts and 4 fixed crest spillways

Bank Stabilization: 1.0 mile

Yazoo Backwater Including Muddy Bayou Control Structure:

Lands and Damages: 30,203 acres

Relocations:

Roads: 24.3 miles and 2 bridges

Railroads: 0.8 mile and 1 bridge

Fish and Wildlife Facilities:

2 Water Control Structures

7 Greentree Reservoirs

5 Slough Control Areas

4 Pumping Stations

Channels: 38.9 miles, average depth, 25 feet

Levees: 78.5 miles levees, variable height, 5 to 30 feet; 5 floodgates, openings vary in size from 72 square feet to 2,700 square feet

Yazoo Backwater Including Muddy Bayou Control Structure:

Recreation Facilities: 2 boat-launching ramps

Floodway Control and Diversion Structures:

Muddy Bayou Control Structure (opening size 480 square feet)

Rocky Bayou Area:

Lands and Damages: 1,140 acres

Relocations:

Roads: 7.0 miles

Levees: 19.0 miles

Yazoo Backwater Pumping Plant:

Lands and Damages: 378 acres project lands

Relocations:

Roads: 1.0 mile and 1 bridge

Channels: 1.9 miles

Levees: 0.5 miles, variable height 7 to 30 feet

Pumping Plant: One 10,000 cubic feet per second

Yazoo Backwater, Fish and Wildlife Mitigation:

Lands and Damages: 8,807 acres

Streambank Erosion Control Evaluation and Demonstration:

Bank Stabilization: 65.0 miles

328

JUSTIFICATION: The Yazoo Headwater feature will protect 1,209,000 acres against overflow, substantially benefit 303,000 acres and protect Greenwood, Belzoni, Yazoo City and numerous smaller communities. Channel improvement work on the Big Sunflower River and its tributaries will protect 195,000 acres against the design flood and an additional 395,000 acres will be benefitted because of improved drainage conditions. Also, approximately 368,000 acres in the Yazoo Backwater Area will be protected against all but the larger floods and substantial benefits will accrue to an additional 224,000 acres from improved drainage. Had there been no protection in 1958, the floods of April-June and September would have caused damages amounting to $22,821,000. Should these floods recur under present conditions, but with the flood control works assumed complete, damages amounting to $181,779,000 would be prevented. In addition, the four Yazoo Basin lakes are being used extensively for recreation. A continual expansion of facilities is required to meet public demand for recreation opportunities. Visitor-day attendance increased from 2,857,000 in calendar year 1958 to 12,052,000 visitor days in Fiscal Year 1995. Average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$113,791,000
Fish and Wildlife	7,142,000
Recreation	18,557,000
Area Redevelopment	1,234,000
Bank Stabilization Works	1,478,000
Total	$142,202,000

In recent years, considerable opposition developed to the Upper Yazoo Basin projects based on environmental concerns and concerns of landowners regarding land takings. To respond to these concerns and because the project plans were developed in the 1960's, a decision was made in December 1988 to reanalyze the remaining unconstructed portions of the project in accordance with the current Principles and Guidelines for planning water resources. This is necessary to determine the current advisability of the remaining work with respect to environmental effects and economic justification. Concurrently, former Governor Ray Mabus formed an Advisory Committee to advise him on how the controversial issues might be resolved. As a result of these two actions, the Corps has undertaken a reformulation study of the remaining unconstructed features of the Yazoo Basin project. This study will identify alternative plans for achieving greater levels of environmental and urban flood protection. Funds were provided in Fiscal Year 1991 to continue the study. The purpose of the study is to reformulate the project in accordance with the Principles and Guidelines. The study assumes all features scheduled to be placed under contract in Fiscal Year 1990 were in place. The study will be completed in phases, and interim reports were prepared beginning in Fiscal Year 1992 so that construction of the project could proceed as expeditiously as possible.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Upper Yazoo Projects:	
Continue:	
Lands and Damages	$2,054,000
Reforestation Phase I	250,000
Complete:	
Item 3A-2 Channel	2,801,000
Alligator-Catfish Structure	915,000
Planning, Engineering, and Design	2,000,000
Construction Management	749,000
Subtotal	$8,769,000
Main Stem:	
Planning, Engineering, and Design	$ 25,000
Subtotal	$ 25,000
Tributaries:	
Continue:	
Lands and Damages	$ 14,000
Levee Gap Closure	198,000
Complete:	
Item 4	
Highway 49 Bridge	488,000
Miscellaneous Relocations	89,000
Planning, Engineering, and Design	100,000
Supervision and Administration	15,000
Subtotal	$904,000

Demonstration Erosion Control:	
Complete:	
Lands and Damages	$ 100,000
Relocations	100,000
Collection and Study Basic Data	1,955,000
Abiaca Creek Watershed:	
Abiaca Creek Item #2	1,532,000
Batupan Bogue Watershed:	
Mouse Creek Bank Stabilization	460,000
Black Creek Watershed:	
Floodwater Retarding Structure #52	2,900,000
Coldwater River Watershed:	
2 Low Drop Grade Control Structures	400,000
Bank Stabilization	372,000
Hurricane-Wolfe Watershed:	
12 Riser Pipe Grade Control Structures	615,000
2 Bank Stabilizations	866,000
Miscellaneous Hired Labor	700,000
Planning, Engineering, and Design	2,000,000
Supervision and Administration	700,000
Subtotal	$12,700,000
Big Sunflower, Etc., Including Steele Bayou:	
Initiate:	
Main Canal:	
Item 2 Relocations	$ 379,000
Item 2 Channel	739,000
Item 2 14 Riser Pipes	131,000
Robertshaw Ditch/Channel	86,000
Wood Duck Boxes	109,000
Item 66A/B Swan Lake Phase III	589,000

Big Sunflower, Etc., Including Steele Bayou:	
Continue:	
Lands and Damages	$ 2,078,000
Main Canal:	
Item 2 Relocations	1,525,000
Mitigation Reforestation Items	68,000
Complete:	
Item 1 Weir	10,000
Item 1 26 Riser Pipes	10,000
Planning, Engineering, and Design	543,000
Supervision and Administration	540,000
Subtotal	$ 6,807,000
Yazoo Backwater Less Rocky Bayou:	
Planning, Engineering, and Design	$ 20,000
Subtotal	$ 20,000
Yazoo Backwater Fish and Wildlife Mitigation Lands:	
Continue:	
Reforestation Lake George	$ 287,000
Lands and Damages	50,000
Planning, Engineering, and Design	123,000
Supervision and Administration	20,000
Subtotal	$ 480,000
Reformulation Study:	
Reformulation Studies	$ 3,459,000
Subtotal	$ 3,459,000
TOTAL	$33,164,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the initial authorization and subsequent authorized modifications of the Yazoo Basin project including the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Will M. Whittington:		
Pay 25 percent of the first costs allocated to fish and wildlife enhancement and pay 25 percent of the costs of operation, maintenance, repair, rehabilitation, and replacement of fish and wildlife facilities	$ 209,000	$63,000
Subtotal Non-Federal Costs	$ 209,000	$63,000
Big Sunflower River, Etc., Including Steele Bayou:		
Provide 25 percent of lands allocated to fish and wildlife enhancement.	$ 43,000	
Pay 25 percent of the first costs allocated to fish and wildlife enhancement and pay 25 percent of the costs of operation, maintenance, and maintain and operate fish and wildlife facilities and perform minor maintenance on the project.	$ 452,000	$42,800
Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas	$ 30,000	
Subtotal Non-Federal Costs	$ 525,000	$42,800

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Main Stem:		
Provide lands, easements, rights-of-way, and dredged material disposal areas	$ 11,000	
Subtotal Non-Federal Costs	$ 11,000	
Yazoo Backwater Including Muddy Bayou Control Structures:		
Pay 25 percent of the first costs allocated to fish and wildlife enhancement and pay 25 percent of the costs of operation, maintenance, repair, rehabilitation, and replacement of fish and wildlife facilities	$ 169,000	$25,000
Subtotal Non-Federal Costs	$ 169,000	$25,000
Rocky Bayou:		
Provide lands, easements, rights-of-way, and dredged material disposal areas	$1,273,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project	$1,525,000	

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Rocky Bayou:		
Pay 8.2 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities.	$ 1,425,000	$ 33,000
Subtotal Non-Federal Costs	$ 4,223,000	$ 33,000
Yazoo Backwater Pumping Plant:		
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project	$ 2,600,000	
Pay 22.5 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities.	$22,978,000	$827,452
Subtotal Non-Federal Costs	$25,578,000	$827,452
Total Non-Federal Costs	$30,715,000	$828,001

335
C-1

STATUS OF LOCAL COOPERATION:

Flood Control:

Local cooperation is not required for the Yazoo Headwater Unit.

Assurances to operate the Big Sunflower River Unit and perform minor maintenance have been accepted from the Yazoo-Mississippi Delta Levee District and the Board of Mississippi Levee Commissioners. Formal assurances for work in the Steele Bayou Basin were accepted 8 June 1972 without the requirement that local interests "construct or have constructed by others, the necessary associated interior drainage works." The requirements of PL 91-646 are a Federal responsibility.

For the Yazoo Backwater unit, assurances of local cooperation have been accepted from the Board of Mississippi Levee Commissioners and the Yazoo-Mississippi Delta Levee District. Supplemental assurances covering the requirements of local cooperation as provided for in the "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970" (PL 91-646), were accepted 7 August 1972. The Board of Levee Commissioners for the Yazoo-Mississippi Delta, non-Federal sponsor for the Rocky Bayou, and the Board of Levee Commissioners for the Mississippi Levee District, non-Federal sponsor for the Backwater Pumping Plant, have been notified of the cost-sharing requirements of the Water Resources Development Act of 1986. The Board of Commissioners for the Mississippi Levee District indicated by letter dated 3 November 1988 they cannot agree to any form of cost sharing for the Yazoo Backwater Pumping Plant. However, they have recently agreed to pay up to 5 percent toward the remaining construction cost and operating cost as per 16 July 1990 letter from Senator Thad Cochran to Senator J. Bennett Johnston, Chairman, Subcommittee on Energy and Water Development. The Board of Levee Commissioners for the Yazoo-Mississippi Delta has not responded concerning their intentions to cost share. As a result, no schedule has been developed for execution of the Local Cooperation Agreements.

Recreation:

The State of Mississippi, which provided formal assurances in 1967 that it would operate and maintain Corps constructed recreation facilities at the Yazoo Basin lakes, notified the Vicksburg District in the early 1980's that it was unable to fully comply with the assurances and to continue the operation and maintenance function for some of the sites. Under the terms of an escape clause in the leases, the state was allowed to withdraw their operation and maintenance support at some sites.

Fish and Wildlife:

Local cooperation agreements will be obtained when planning is more advanced.

COMPARISON OF FEDERAL COST ESTIMATES: The current cost estimate of $1,629,544,000 is a decrease of $296,601,000 from the latest estimate ($1,926,145,000) presented to Congress (Fiscal Year 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$-46,051,000
Price Escalation on Real Estate Features	4,932,000
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	-255,482,000
Total	$ -296,601,000

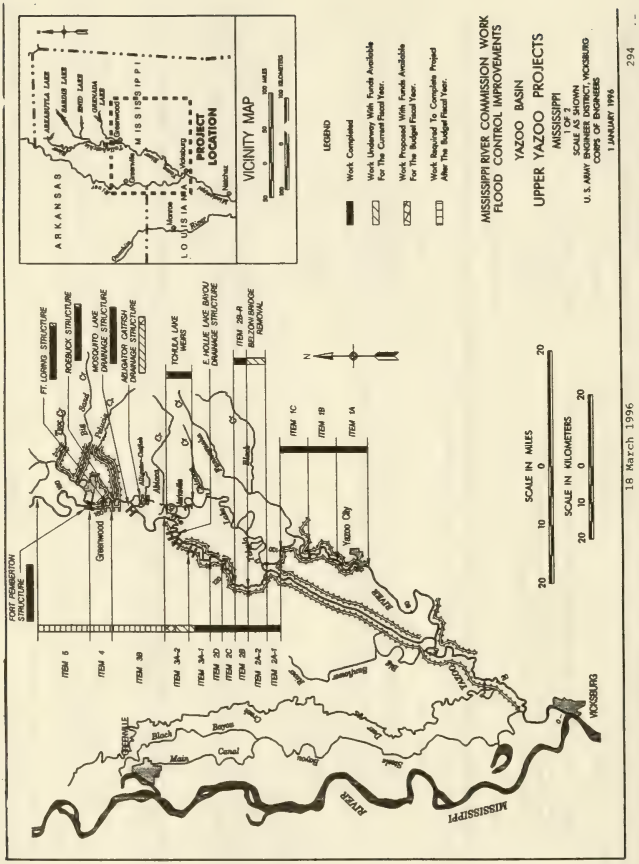
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: Final Environmental Impact Statements have been filed with the Council on Environmental Quality or with the Environmental Protection Agency as follows:

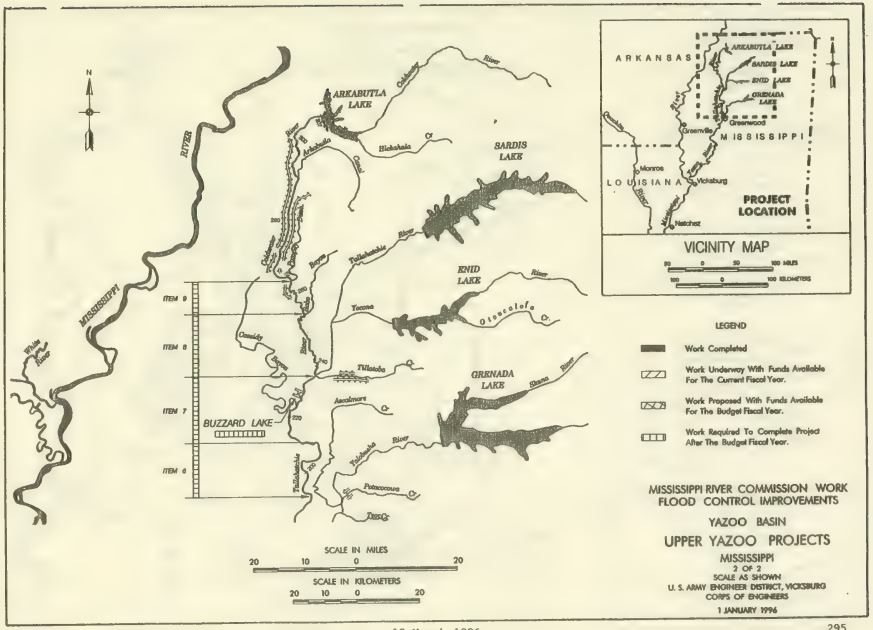
Project Unit	Date
Upper Yazoo Project	16 January 1976
Main Stem	16 January 1976
Tributaries (Except Ascalmore-Tippo and Opossum Bayou)	16 January 1976
Ascalmore-Tippo and Opossum Bayou	6 June 1975
Demonstration Erosion Control	1/
Big Sunflower	16 January 1976
Yazoo Backwater	16 January 1976

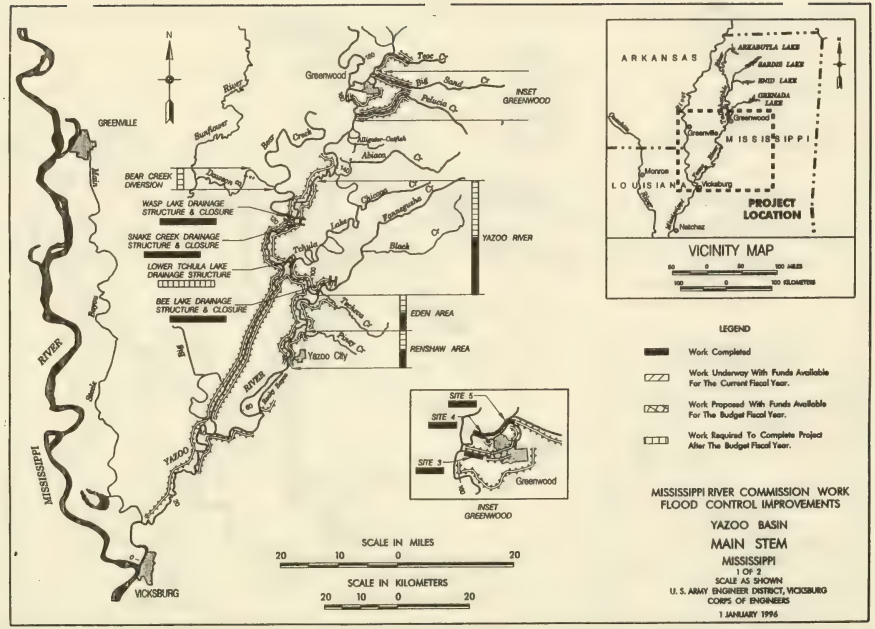
OTHER INFORMATION:

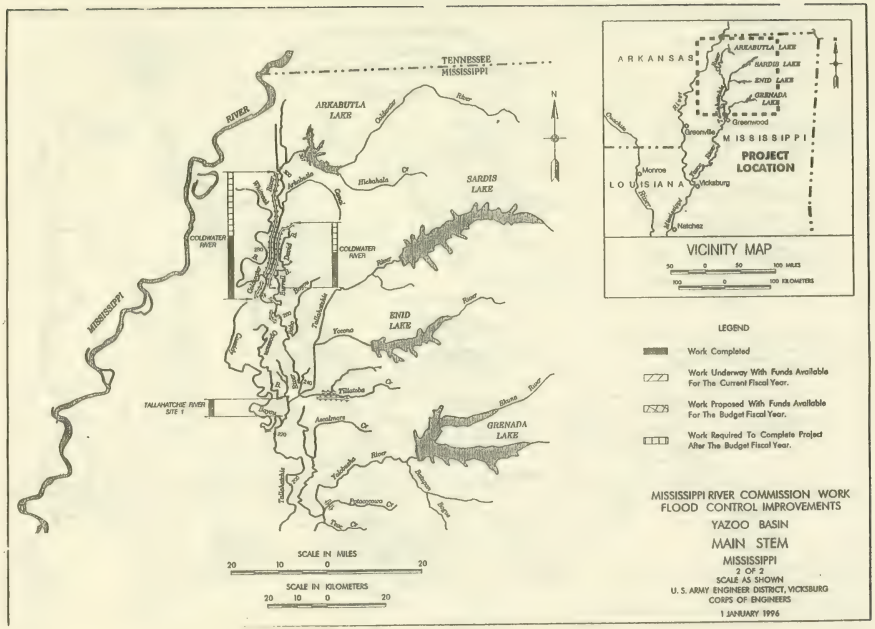
Funds to initiate construction were appropriated in Fiscal Year 1936. The scheduled completion date of September 1997 for Demonstration Erosion Control project unit reflects an 8-year change in project completion. The Demonstration Erosion Control project has proven its effectiveness and the non-Federal interests should assume responsibility for remaining work.

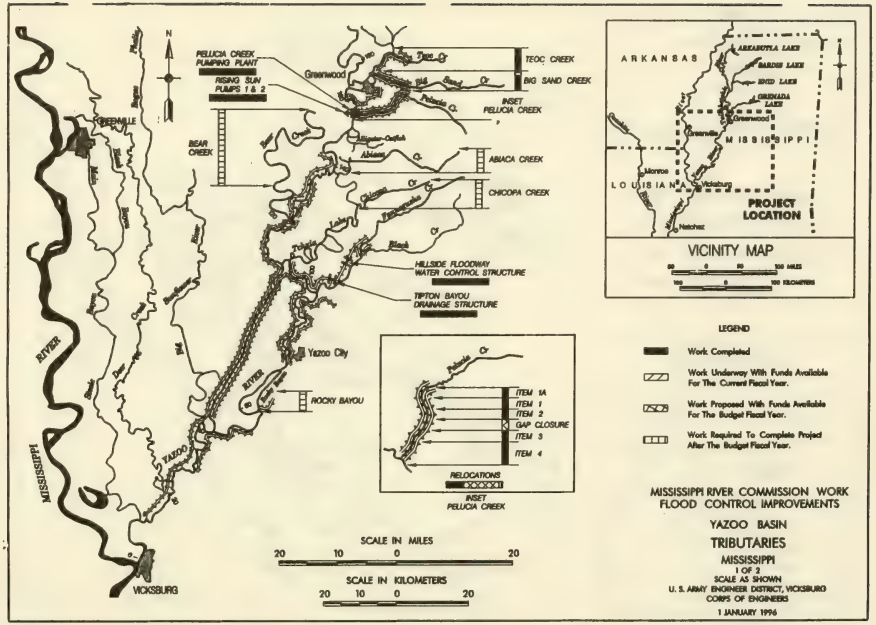
1/ The appropriate National Environmental Policy Act documentation will include preparation of an Environmental Impact Statement if environmental impacts are determined to be significant.

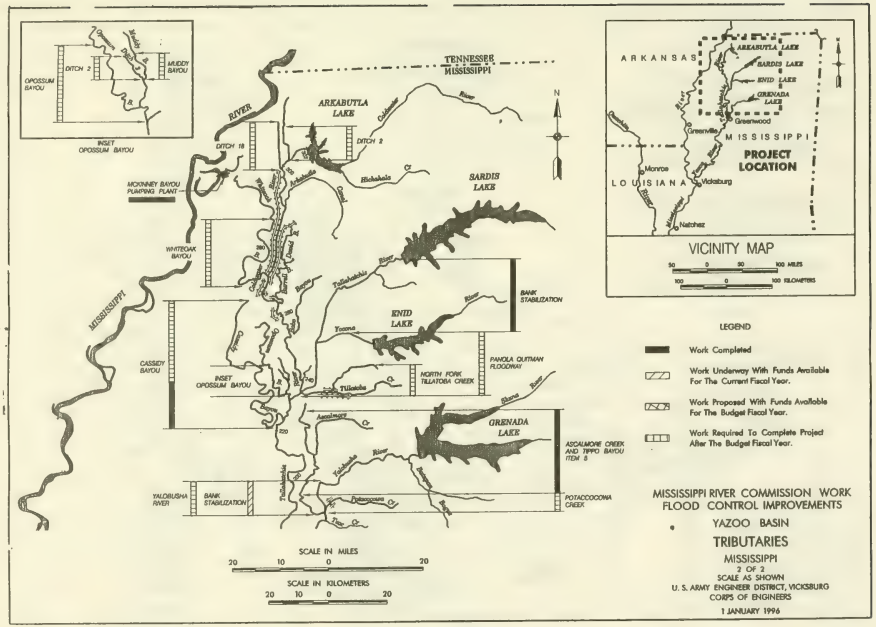

MISSISSIPPI RIVER COMMISSION WORK
FLOOD CONTROL IMPROVEMENTS
YAZOO BASIN
UPPER YAZOO PROJECTS
MISSISSIPPI
1 OF 2
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
VICINITY MAP
PROJECT LOCATION
ARKANSAS
MISSISSIPPI
LOUISIANA
Greenwood
Greenville
Vicksburg
Monroe
Natchez
ARKABUTLA LAKE
SARDIS LAKE
ENID LAKE
GRENADA LAKE
FORT PEMBERTON STRUCTURE
FT. LORING STRUCTURE
ROEBUCK STRUCTURE
MOSQUITO LAKE DRAINAGE STRUCTURE
ALLIGATOR CATFISH DRAINAGE STRUCTURE
TCHULA LAKE WEIRS
E. HOLLIE LAKE BAYOU DRAINAGE STRUCTURE
ITEM 2B-R BELZONI BRIDGE REMOVAL
ITEM 5
ITEM 4
ITEM 3B
ITEM 3A-2
ITEM 3A-1
ITEM 2D
ITEM 2C
ITEM 2B
ITEM 2A-2
ITEM 2A-1
ITEM 1C
ITEM 1B
ITEM 1A
Greenwood
Yazoo City
GREENVILLE
VICKSBURG
MISSISSIPPI RIVER
YAZOO RIVER
Black Bayou
Main Canal
Deer Creek
SCALE IN MILES
20 10 0 20
SCALE IN KILOMETERS
20 10 0 20
18 March 1996
294

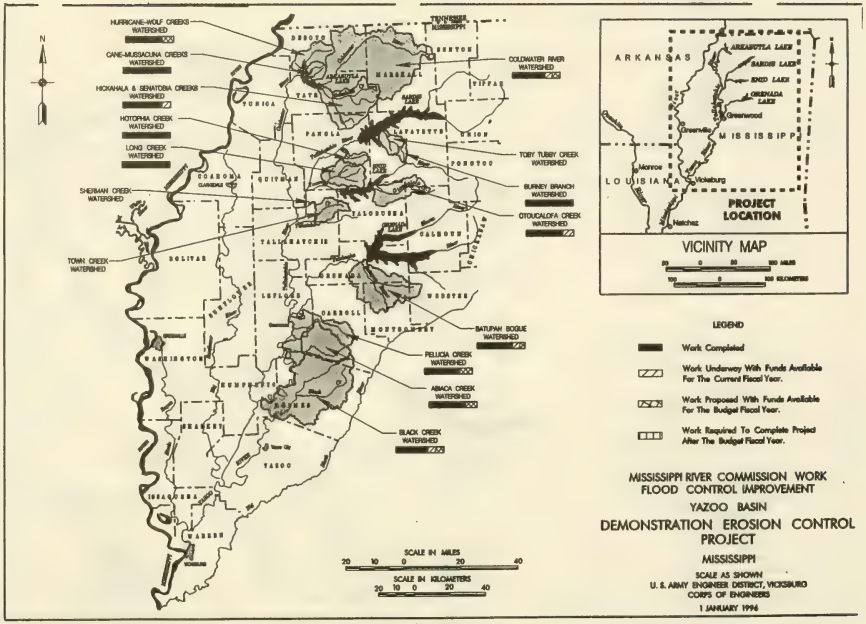

N
MISSISSIPPI
RIVER
White River
AREABUTLA LAKE
Coldwater
River
Arkabutla
Hickahala Cr.
SARDIS LAKE
Tallahatchie
River
ENID LAKE
Yocona
Otoscalofa Cr.
Coldwater
Cassidy
Tippo
Tillatoba
GRENADA LAKE
Yalobusha
River
Avalanche Cr.
BUZZARD LAKE
Tallahatchie
Pattaccouna Cr.
Tiss Cr.
ITEM 9
ITEM 8
ITEM 7
ITEM 6
SCALE IN MILES
20 10 0 20
SCALE IN KILOMETERS
20 10 0 20
ARKANSAS
ARKABUTLA LAKE
SARDIS LAKE
ENID LAKE
GRENADA LAKE
Greenwood
Greenville
MISSISSIPPI
Monroe
LOUISIANA
Vicksburg
Natchez
PROJECT LOCATION
VICINITY MAP
100 0 100 MILES
100 0 100 KILOMETERS
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
MISSISSIPPI RIVER COMMISSION WORK
FLOOD CONTROL IMPROVEMENTS
YAZOO BASIN
UPPER YAZOO PROJECTS
MISSISSIPPI
2 OF 2
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996

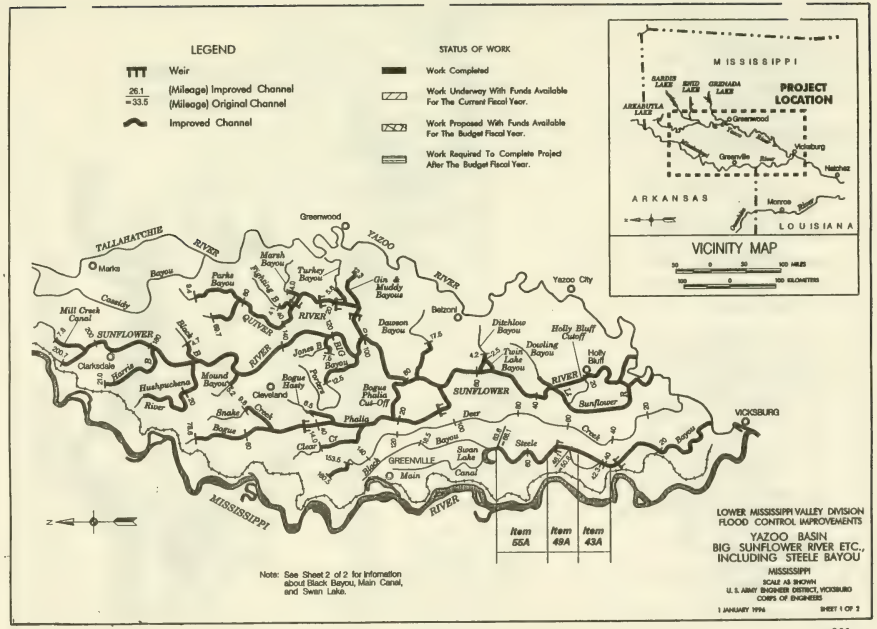

N
GREENVILLE
MISSISSIPPI RIVER
YAZOO RIVER
VICKSBURG
Yazoo City
Greenwood
Tyer Cr.
Big Sand Cr.
Palacia Cr.
Abiaca Cr.
Quiver Cr.
Tallahala Cr.
Black Cr.
Tchula Lake
Tchula Cr.
Piney Cr.
Big Sand Bayou
Bungaree Cr.
Bear Creek
Bear Creek Cr.
Wasp Cr.
Snake Cr.
Big Sand Cr.
BEAR CREEK DIVERSION
WASP LAKE DRAINAGE STRUCTURE & CLOSURE
SNAKE CREEK DRAINAGE STRUCTURE & CLOSURE
LOWER TCHULA LAKE DRAINAGE STRUCTURE
BEE LAKE DRAINAGE STRUCTURE & CLOSURE
EDEN AREA
RENSHAW AREA
INSET GREENWOOD
SITE 5
SITE 4
SITE 3
Greenwood
INSET GREENWOOD
SCALE IN MILES
20 10 0 20
SCALE IN KILOMETERS
20 10 0 20
ARKANSAS
ARKABUTLA LAKE
SARDIS LAKE
ENID LAKE
GRENADA LAKE
Greenwood
Greenville
MISSISSIPPI
LOUISIANA
Monroe
Vicksburg
Natchez
PROJECT LOCATION
VICINITY MAP
50 0 50 100 MILES
100 0 100 KILOMETERS
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
MISSISSIPPI RIVER COMMISSION WORK
FLOOD CONTROL IMPROVEMENTS
YAZOO BASIN
MAIN STEM
MISSISSIPPI
1 OF 3
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996

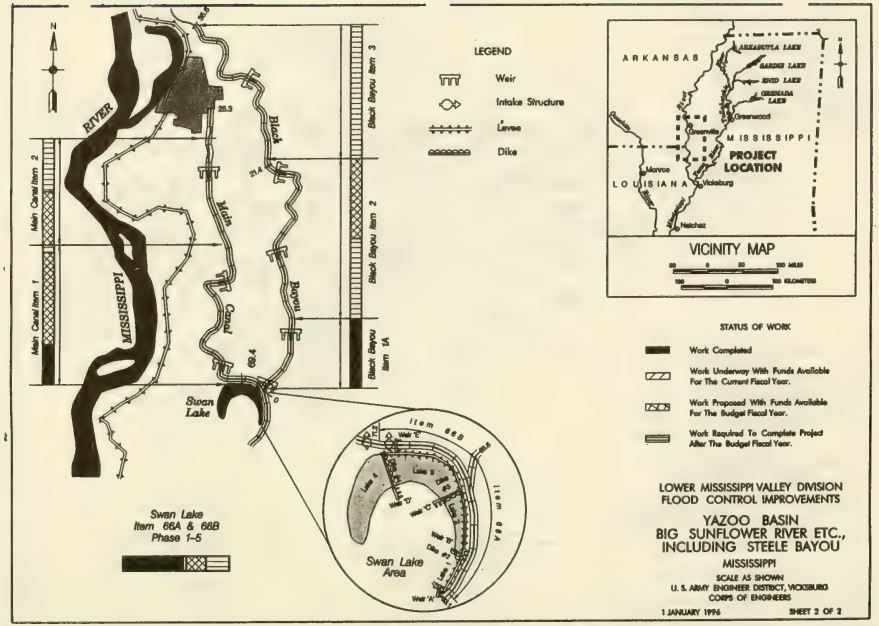

TENNESSEE
MISSISSIPPI
ARKABUTTLA LAKE
SARDIS LAKE
ENID LAKE
GRENADA LAKE
COLDWATER RIVER
TALLAHATCHIE RIVER SITE 1
MISSISSIPPI RIVER
Hickahala Cr
Yocona
Yalobusha
Aenobarba Cr
Pattersonia Cr
Tallahatchie
Yalobusha River
Batesville
Sardis
Enid
Grenada
Ethun River
Batesville
Sardis
Enid
Grenada
Coldwater River
Tallahatchie
Yocona River
Yalobusha River
Ethun River
Batesville
Sardis
Enid
Grenada
Coldwater River
Tallahatchie
Yocona River
Yalobusha River
Ethun River
Batesville
Sardis
Enid
Grenada
Coldwater River
Tallahatchie
Yocona River
Yalobusha River
Ethun River
N
SCALE IN MILES
20 10 0 20
SCALE IN KILOMETERS
20 10 0 20
ARKANSAS
ARKABUTTLA LAKE
SARDIS LAKE
ENID LAKE
GRENADA LAKE
Greenwood
Greenville
MISSISSIPPI
PROJECT LOCATION
Monroe
LOUISIANA
Vicksburg
Natchez
VICINITY MAP
50 0 50 100 MILES
100 0 100 KILOMETERS
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
MISSISSIPPI RIVER COMMISSION WORK
FLOOD CONTROL IMPROVEMENTS
YAZOO BASIN
MAIN STEM
MISSISSIPPI
2 OF 2
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996

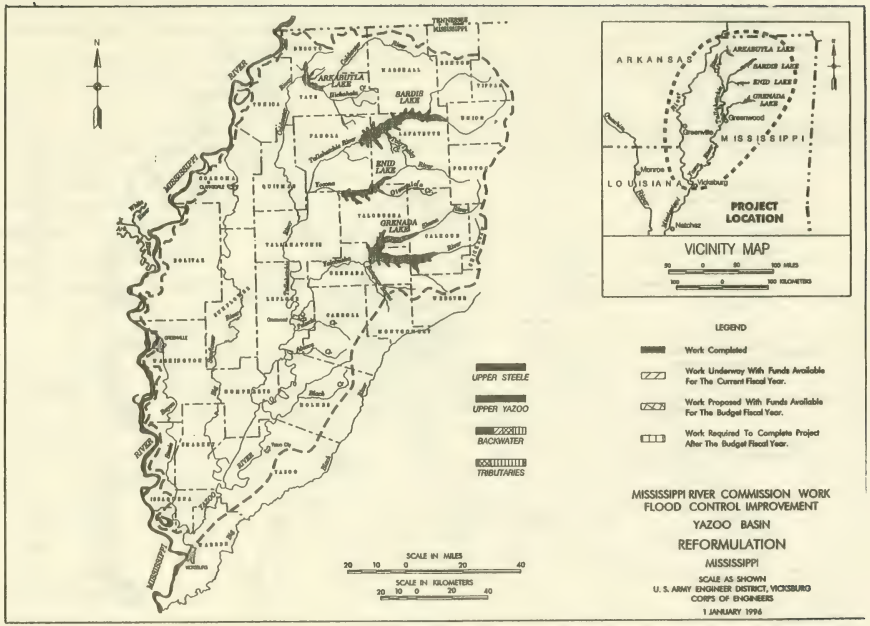

PELICIA CREEK PUMPING PLANT
RISING SUN PUMPS 1 & 2
TEOC CREEK
BIG SAND CREEK
INSET PELICIA CREEK
BEAR CREEK
ABIACA CREEK
CHICOPA CREEK
HILLSIDE FLOODWAY WATER CONTROL STRUCTURE
TIPTON BAYOU DRAINAGE STRUCTURE
ROCKY BAYOU
Yazoo City
YAZOO
GREENVILLE
VICKSBURG
MISSISSIPPI RIVER
Greenwood
Abiaca
Pelicia Cr.
Bear Creek
Tippo Bayou
Black Cr.
Yazoo River
ITEM 1A
ITEM 1
ITEM 2
GAP CLOSURE
ITEM 3
ITEM 4
RELOCATIONS
INSET PELICIA CREEK
SCALE IN MILES
20 10 0 20
SCALE IN KILOMETERS
20 10 0 20
ARKANSAS
MISSISSIPPI
LOUISIANA
ARKABUTLA LAKE
SARDIS LAKE
ENID LAKE
GRENADA LAKE
Greenwood
Greenville
Monroe
Vicksburg
Natchez
PROJECT LOCATION
VICINITY MAP
50 0 50 100 MILES
100 0 100 KILOMETERS
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
MISSISSIPPI RIVER COMMISSION WORK
FLOOD CONTROL IMPROVEMENTS
YAZOO BASIN
TRIBUTARIES
MISSISSIPPI
1 OF 2
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996

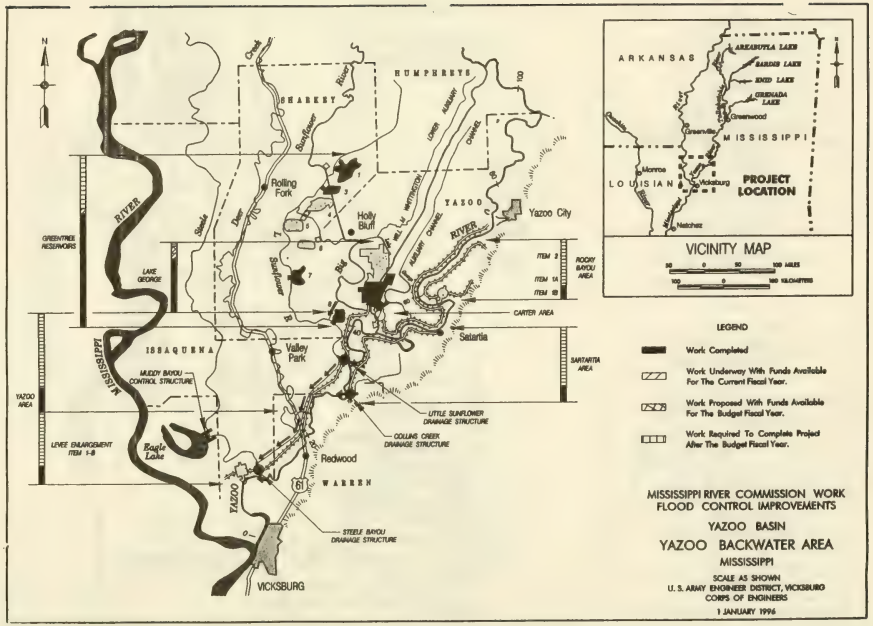

TENNESSEE
MISSISSIPPI
AREABUTLA LAKE
SARDIS LAKE
ENID LAKE
GRENADA LAKE
MISSISSIPPI RIVER
DITCH 18
DITCH 2
MOKINNEY BAYOU PUMPING PLANT
WHITEOAK BAYOU
CASSEDY BAYOU
INSET OPOSSUM BAYOU
OPOSSUM BAYOU
MUDDY BAYOU
BANK STABILIZATION
PANOLA QUITMAN FLOODWAY
NORTH FORK TILLATOBA CREEK
ASCALMORE CREEK AND TIPPO BAYOU ITEM 8
POTACOCOONA CREEK
YALOBUSHA RIVER
SCALE IN MILES
SCALE IN KILOMETERS
ARKANSAS
MISSISSIPPI
LOUISIANA
PROJECT LOCATION
VICINITY MAP
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
MISSISSIPPI RIVER COMMISSION WORK
FLOOD CONTROL IMPROVEMENTS
YAZOO BASIN
TRIBUTARIES
MISSISSIPPI
2 OF 2
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996


HURRICANE-WOLF CREEKS WATERSHED
CANE-MUSKADONA CREEKS WATERSHED
HICKAHALA & SENATOBIA CREEKS WATERSHED
HOTOPHIA CREEK WATERSHED
LONG CREEK WATERSHED
SHERMAN CREEK WATERSHED
TOWN CREEK WATERSHED
COLDWATER RIVER WATERSHED
TOBY TUBBY CREEK WATERSHED
BURNEY BRANCH WATERSHED
OTOUCALOFA CREEK WATERSHED
BATUPAN BOGUE WATERSHED
PELUCIA CREEK WATERSHED
ABACA CREEK WATERSHED
BLACK CREEK WATERSHED
N
SCALE IN MILES
20 10 0 20 40
SCALE IN KILOMETERS
20 10 0 20 40
ARKANSAS
ARKABUTLA LAKE
SARDIS LAKE
ENID LAKE
GRENADA LAKE
Greenwood
Greenville
MISSISSIPPI
LOUISIANA
Monroe
Vicksburg
Natchez
PROJECT LOCATION
VICINITY MAP
50 0 50 100 MILES
100 0 100 200 KILOMETERS
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
MISSISSIPPI RIVER COMMISSION WORK
FLOOD CONTROL IMPROVEMENT
YAZOO BASIN
DEMONSTRATION EROSION CONTROL PROJECT
MISSISSIPPI
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996


LEGEND
Weir
26.1 (Mileage) Improved Channel
=33.5 (Mileage) Original Channel
Improved Channel
STATUS OF WORK
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
MISSISSIPPI
SARDIS LAKE
ENID LAKE
GRENADA LAKE
ARKABUTLA LAKE
PROJECT LOCATION
Greenwood
Vicksburg
Greenville
River
Natchez
ARKANSAS
Monroe
LOUISIANA
VICINITY MAP
MILES
KILOMETERS
Greenwood
TALLAHATCHIE RIVER
YAZOO RIVER
Marks
Bayou
Coastly
Mill Creek Canal
To SUNFLOWER
Clarksdale
Hushpuchena River
Harris
Mound Bayouo
Cleveland
Snake Creek
Bogue
Parks Bayou
Marsh Bayou
Turkey Bayou
Gin & Muddy Bayous
Dawson Bayou
Jones Bayou
Bogue Hasty
Bogue Phalia Cut-Off
Phalia
Clear Cr
GUNTER RIVER
Belzoni
Yazoo City
Ditchlow Bayou
Twin Lake Bayou
Dowling Bayou
Holly Bluff Cutoff
Holly Bluff
SUNFLOWER RIVER
Sunflower
Deer Creek
Steele Bayou
Swan Lake
GREENVILLE
Main Canal
MISSISSIPPI RIVER
VICKSBURG
Item 55A
Item 49A
Item 43A
Note: See Sheet 2 of 2 for information about Black Bayou, Main Canal, and Swan Lake.
LOWER MISSISSIPPI VALLEY DIVISION
FLOOD CONTROL IMPROVEMENTS
YAZOO BASIN
BIG SUNFLOWER RIVER ETC., INCLUDING STEELE BAYOU
MISSISSIPPI
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996
SHEET 1 OF 2


N
RIVER
MISSISSIPPI
Main Canal Item 2
Main Canal Item 1
Black Bayou Item 3
Black Bayou Item 2
Black Bayou Item 1A
Main Canal
Black Bayou
Swan Lake
Swan Lake Item 66A & 66B Phase 1-5
Swan Lake Area
Item 66B
Item 66A
Weir "E"
Weir "C"
Weir "D"
Weir "B"
Weir "A"
Lake 4
Lake 3
Lake 2
Lake 1
LEGEND
Weir
Intake Structure
Levee
Dike
ARKANSAS
ARKABUTLA LAKE
SARDIS LAKE
ENID LAKE
GRENADA LAKE
Greenwood
Greenville
MISSISSIPPI
PROJECT LOCATION
Marrow
LOUISIANA
Vicksburg
Natchez
VICINITY MAP
STATUS OF WORK
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
LOWER MISSISSIPPI VALLEY DIVISION
FLOOD CONTROL IMPROVEMENTS
YAZOO BASIN
BIG SUNFLOWER RIVER ETC., INCLUDING STEELE BAYOU
MISSISSIPPI
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996
SHEET 2 OF 2


N
TENNESSEE
MISSISSIPPI
ARKANSAS
MISSISSIPPI
LOUISIANA
CARKHUTLA LAKES
BARDIS LAKE
ENID LAKE
GRENADA LAKE
Tallahatchie River
Yocona River
Yalobusha River
Coldwater River
Tippah River
Little Tallahatchie River
Sunflower River
Big Sunflower River
Black Bayou
Deer Creek
Yazoo River
Mississippi River
Tallahatchie River
Yazoo River
Big Black River
Bayou Pierre
Homochitto River
Buffalo River
Tippah
Union
Pontotoc
Lafayette
Calhoun
Yalobusha
Tallahatchie
Grenada
Leflore
Carroll
Holmes
Attala
Madison
Warren
Issaquena
Sharkey
Yazoo
Humphreys
Washington
Bolivar
Sunflower
Coahoma
Tunica
Desoto
Marshall
Tate
Panola
Quitman
Tallahatchie
Leflore
Montgomery
Choctaw
Webster
Clay
Lowndes
Oktibbeha
Winston
Neshoba
Kemper
Noxubee
Lauderdale
Newton
Jasper
Clarke
Wayne
Greene
Pearl River
Hancock
Harrison
Jackson
Stone
Perry
Forrest
Lamar
Pike
Amite
Wilkinson
Franklin
Adams
Jefferson
Claiborne
Copiah
Hinds
Warren
Vicksburg
Natchez
Greenville
Greenwood
Monroe
Vicksburg
Natchez
PROJECT LOCATION
VICINITY MAP
UPPER STEELE
UPPER YAZOO
BACKWATER
TRIBUTARIES
SCALE IN MILES
SCALE IN KILOMETERS
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
MISSISSIPPI RIVER COMMISSION WORK
FLOOD CONTROL IMPROVEMENT
YAZOO BASIN
REFORMULATION
MISSISSIPPI
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996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SHARKEY
HUMPHREYS
YAZOO
ISSAQUENA
WARREN
MISSISSIPPI RIVER
Rolling Fork
Holly Bluff
Yazoo City
Valley Park
Satartia
Redwood
Eagle Lake
VICKSBURG
GREENTREE RESERVOIRS
LAKE GEORGE
YAZOO AREA
LEVEE ENLARGEMENT ITEM 1-B
MUDDY BAYOU CONTROL STRUCTURE
LITTLE SUNFLOWER DRAINAGE STRUCTURE
COLLINS CREEK DRAINAGE STRUCTURE
STEELE BAYOU DRAINAGE STRUCTURE
ITEM 2
ITEM 1A
ITEM 1B
ROCKY BAYOU AREA
CARTER AREA
SARTARTIA AREA
ARKANSAS
MISSISSIPPI
LOUISIANA
ARKABUTLA LAKE
SARDIS LAKE
ENID LAKE
GRENADA LAKE
Greenwood
Greenville
Monroe
Vicksburg
Natchez
PROJECT LOCATION
VICINITY MAP
MILES
KILOMETERS
LEGEND
Work Completed
Work Underway With Funds Available For The Current Fiscal Year.
Work Proposed With Funds Available For The Budget Fiscal Year.
Work Required To Complete Project After The Budget Fiscal Year.
MISSISSIPPI RIVER COMMISSION WORK
FLOOD CONTROL IMPROVEMENTS
YAZOO BASIN
YAZOO BACKWATER AREA
MISSISSIPPI
SCALE AS SHOWN
U. S. ARMY ENGINEER DISTRICT, VICKSBURG
CORPS OF ENGINEERS
1 JANUARY 1996

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO and TN - Construction

PROJECT: Nonconnah Creek, Tennessee and Mississippi (Continuing)

LOCATION: The Nonconnah Creek Basin is located in portions of Shelby and Fayette Counties in southwest Tennessee and extends into DeSoto and Marshall Counties in northwest Mississippi. Approximately half of the city of Memphis, Tennessee, is located within the drainage area.

DESCRIPTION: The plan provides for 7.7 miles of channel enlargement, 10.5 miles of channel clearing, 8.8 miles of bike/hike trails, 0.8 miles of nature trail, and a 33-acre nature area. Channel enlargement and channel clearing are programmed for construction. The environmental enhancement and recreation features are programmed for construction.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 5.0 to 1 at 8-7/8 percent.

TOTAL BENEFIT-COST RATIO: 1.9 to 1 at 8-7/8 percent.

INITIAL BENEFIT-COST RATIO: 1.8 to 1 at 8-5/8 percent (Fiscal Year 1990).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in June 1990 at October 1987 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost			$18,400,000
Programmed Construction		$17,761,000	
Unprogrammed Construction		639,000	
Estimated Non-Federal Cost			$ 6,600,000
Programmed Construction		$ 6,166,000	
Cash Contributions	$1,200,000		
Other Costs	4,966,000		
Estimated Non-Federal Cost			
Unprogrammed Construction		$ 434,000	
Cash Contributions	$ 0		
Other Costs	434,000		
Total Estimated Programmed Construction Cost			$23,927,000
Total Estimated Unprogrammed Construction Cost			1,073,000
Total Estimated Project Cost			$25,000,000

STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Flood Control	50	Being Determined
Environmental Enhancement	0	Indefinite
Recreation and Fish and Wildlife	0	Indefinite
Entire Project	48	Being Determined

		ACCUM. PCT. OF EST. FED COST
Allocations to 30 September 1995	9,231,000	
Conference Allowance for FY 1996	1,600,000	
Allocation for FY 1996	662,000[1]	
Allocations through FY 1996	9,893,000	54
Allocation Requested for FY 1997	4,000,000	76
Programmed Balance to Complete After FY 1997	3,868,000	
Unprogrammed Balance to Complete After FY 1997	639	

PHYSICAL DATA

Lands and Damages:	
Flood Control	600 acres
F&WL Enhancement	33 acres
Relocations:	
Roads	1 bridge
Utilities	36 facilities
Channels:	
Enlargement	7.7 miles
Vegetative Clearing	10.5 miles
Recreation:	
Bike/Hike Trails	8.8 miles
Nature Trail	0.8 miles

JUSTIFICATION: Flood protection is needed for 7,400 homes, businesses, and public buildings on 12,000 acres of urban and urbanizing lands located within the Nonconnah Creek flood plain inundated by the standard project flood. The present value of these properties subject to flood damage is equal to $1,613,400, (1995 price levels). With the proposed Soil Conservation Service structures on Johns Creek assumed in place, over 7,300 structures (6,200 residential and 1,100 commercial and industrial structures) and 9,700 overbank acres along the urban area of Nonconnah Creek would be subjected to flooding from the standard project flood. No change in land use within the floodplain is projected due to construction of the flood control project, nor will any permanent deposition of material be placed in wetlands.

Major floods occurred in the basin on 21 November 1934, when 10.48 inches of rain fell in 24 hours, and on 9 May 1958, when 4.76 inches of rain fell in approximately eight hours. The most recent significant flood occurred on 3 December 1978, when 4.9 inches were recorded at the Memphis International Airport. The 1978 storm appears to be between the 5-year and 10-year frequency events. Under present day conditions, the 1934 and 1958 flood levels would cause considerably higher damages due to increased urbanization. When completed, the Nonconnah Creek project will prevent approximately $455,993,000 (1995 price levels) in flood damages during the standard project flood. Total average annual benefits are as follows:

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[1] Reflects $181,000 reduction assigned as savings and slippage and $757,000 reprogrammed from the project.

23-577 O - 96 - 12

Annual Benefits	Amount
Flood Damage Prevention (Urban)	$ 2,377,000
Other Flood Control Benefits	366,000
Environmental Enhancement	33,000
Recreation Facilities	498,000
Total	$ 3,274,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

FLOOD CONTROL	
Initiate:	
Item 1, Mile 0-6.20	$3,918,000
Continue:	
Lands and Damages	23,000
Supervision and Administration	59,000
Total	$4,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financial concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation and Replacement Costs
Provide lands, easements, rights-of-way,and dredged material disposal areas.	$ 1,910,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges) and other facilities where necessary in the construction of the project.	3,056,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of recreation facilities.	313,000	$ 15,000
Pay not less than 5 percent of the cost allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent; and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities.	1,200,000	12,000
Pay 25 percent of the first costs allocated to fish and wildlife enhancement, and pay 25 percent of the costs of operation, maintenance, repair, rehabilitation, and replacement of fish and wildlife facilities.	121,000	
Total Non-Federal Costs	$ 6,600,000	$ 27,000

The Non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

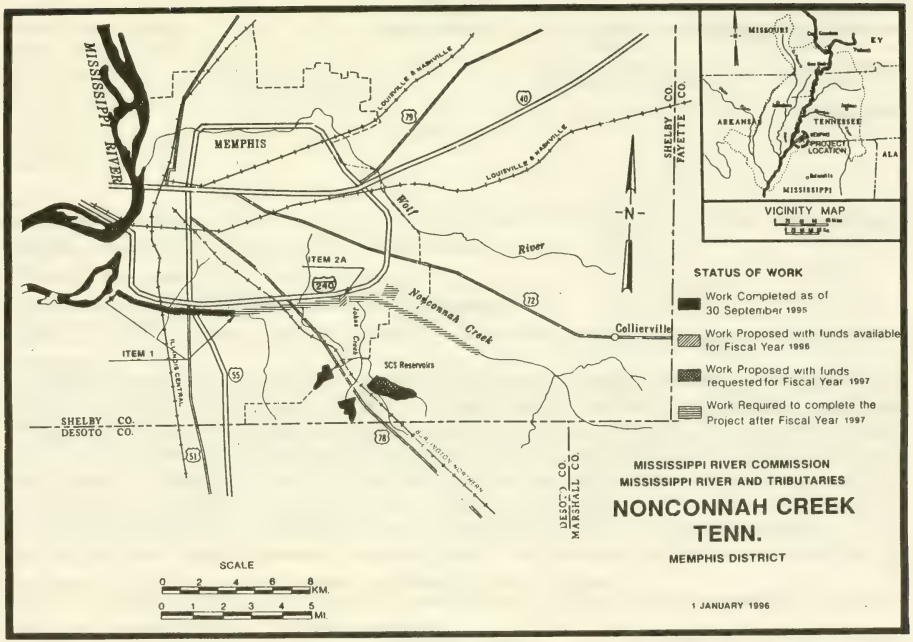
STATUS OF LOCAL COOPERATION: The Local Cooperation Agreement for flood control features was executed on 23 July 1990, with the City of Memphis, Tennessee, serving as the local sponsor.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $18,400,000 is the same as the latest estimate ($18,400,000) presented to Congress (Fiscal Year 1996). However, adjustments were made within the cost estimate as follows:

Item	Amount
Price Escalation on Construction Features	$ -37,000
Price Escalation on Real Estate	37,000
Total	$ 0

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final supplemental Environmental Impact Statement was filed with the Environmental Protection Agency on 22 July 1982. Environmental assessments were made during Phase II General Design Memorandum studies, and changes were not of significant magnitude to warrant modifying the project Environmental Impact Statement.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1986, and funds to initiate construction were appropriated in Fiscal Year 1990. The congressional authorization provides for development to be implemented by the Corps of Engineers, the United States Department of Agriculture and the local sponsoring organizations. The Department of Agriculture has responsibility for construction of three flood-water control structures on the Johns Creek tributary and for implementation of a basin-wide program of land treatment for erosion and sediment control on 35,010 acres. Implementation of the plans of improvement by the Corps of Engineers and the Department of Agriculture are not dependent on each other for justification nor functioning.


MISSISSIPPI RIVER
MEMPHIS
LOUISVILLE & NASHVILLE
LOUISVILLE & NASHVILLE
Wolf
River
Nonconnah Creek
ITEM 2A
ITEM 1
SCS Reservoirs
Collierville
SHELBY CO.
DESOTO CO.
SHELBY CO.
FAYETTE CO.
DESOTO CO.
MARSHALL CO.
N
SCALE
0 2 4 6 8 KM.
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MISSOURI
KY
ARKANSAS
TENNESSEE
MEMPHIS
PROJECT LOCATION
ALA
MISSISSIPPI
VICINITY MAP
STATUS OF WORK
Work Completed as of 30 September 1995
Work Proposed with funds available for Fiscal Year 1996
Work Proposed with funds requested for Fiscal Year 1997
Work Required to complete the Project after Fiscal Year 1997
MISSISSIPPI RIVER COMMISSION
MISSISSIPPI RIVER AND TRIBUTARIES
NONCONNAH CREEK
TENN.
MEMPHIS DISTRICT
1 JANUARY 1996

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO and TN - Construction

PROJECT: West Tennessee Tributaries, Tennessee (Continuing)

LOCATION: The project is located along the Obion and Forked Deer Rivers and their forks in West Tennessee, in Weakley, Madison, Gibson, Obion, Dyer, Crockett, Lauderdale and Haywood Counties, Tennessee.

DESCRIPTION: The project consists of improving 119 miles of channels of the Obion River and its principal tributaries, the North, South, Middle and Rutherford Fork; and improving 106 miles of channels of the Forked Deer and its North, South, and Middle Forks to provide adequate drainage outlets and reduce the frequency, depth, and duration of overflow. The work consists of clearing, cleanout, enlargement, and realignment of channels and construction of 7.6 miles of levee from Porter Gap to Island 25 on the Obion River. The project also includes the acquisition of 32,000 acres of fish and wildlife mitigation lands. Approximately 93 miles of channel improvement have been completed and 13,527 acres of land have been purchased for mitigation. Construction on the remaining channel items of the authorized project is now not implementable due to the denial of water quality certification by the state of Tennessee. The project is in the process of being shut down. Shutdown work includes project management and project planning; continued coordination with the state of Tennessee on any problems that may arise during the shutdown process; real estate and environmental activities required in the turnover of the acquired mitigation lands to the state of Tennessee; stability analyses to determine required protection work for bridge and utility crossings in the uncompleted portions of the project; preparation of plans and specifications for the required protection work; and construction of the protection work. Only shutdown work and reevaluation activities are programmed.

AUTHORIZATION: Flood Control Acts of 1948 and 1966 and the Water Resources Development Acts of 1974 and 1976.

REMAINING BENEFIT - REMAINING COST RATIO: 1.9 to 1 at 2-1/2 percent.

TOTAL BENEFIT - COST RATIO: 2.2 to 1 at 2-1/2 percent.

INITIAL BENEFIT - COST RATIO: 2.6 to 1 at 2-1/2 percent (FY 1960).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation approved in August 1983 at 1983 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost			$131,000,000
Programmed Construction		$56,744,000	
Unprogrammed Construction		74,256,000	
Estimated Non-Federal Cost			4,600,000
Programmed Construction		1,674,000	
Cash Contribution	$ 0		
Other Costs	1,674,000		
Estimated Non-Federal Cost			
Unprogrammed Construction		2,926,000	
Cash Contribution	0		
Other Costs	2,926,000		
Total Estimated Programmed Construction Cost			58,418,000
Total Estimated Unprogrammed Construction Cost			77,182,000
Total Estimated Project Cost			$135,600,000

STATUS (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Project Shutdown	60	Being Determined
Currently Approved Plan	41	Indefinite
Entire Project	60	Being Determined

PHYSICAL DATA

Lands and Damages	32,000 acres
Relocations	
Roads	13 bridges
Railroads	7 bridges
Channels	
Obion River	54 miles
Obion River Forks	65 miles
Forked Deer River	5 miles
Forked Deer River Forks	101 miles
Total	225 miles
Levees and Floodwalls	7.6 miles

		ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1995	$ 46,438,000	
Conference Allowance for FY 1996	2,900,000	
Allocation for FY 1996	1,120,000[1]	
Allocations through FY 1996	$ 47,558,000	36
Allocation Requested for FY 1997	$ 3,024,000	38
Programmed Balance to Complete After FY 1997	6,162,000	
Unprogrammed Balance to Complete After FY 1997	$ 74,256,000	

JUSTIFICATION: The project is a flood control and drainage project and is a unit of the Comprehensive Plan for Flood Control, Mississippi River and Tributaries. The floods of record in 1935 and 1937 overflowed 455,000 acres of cleared and wooded area. This entire area will receive benefits from project construction due to accelerated flood runoff thus reducing duration of overflow periods; however, benefits will accrue upon completion of each item of construction. Project construction will also eliminate overflow during the crop season on about 239,221 acres (162,644 cleared and 76,577 wooded). The principal population centers of the drainage basin include Jackson, Dyersburg, Union City, Humboldt, Trenton, and Milan, all in Tennessee, and Fulton, Kentucky. Farming, including truck farming, stock raising and dairying, is the principal occupation throughout the basin. Construction of the project will tend to stabilize the area's predominately agricultural economy. The project is credited with redevelopment benefits, benefits from flood damages prevented and benefits from a higher land use made possible by reduced flooding. Counties within the project area that are subject to substantial and persistent unemployment: Haywood County. Total average annual benefits are as follows:

[1] Reflects $328,000 reduction assigned as savings and slippage and $1,452,000 reprogrammed from the project.

Annual Benefits	Amount
Flood Control	$2,007,000
Area Redevelopment	23,000
Advance Replacement	30,000
Betterments	8,000
Recreation	1,164,000
Timber	605,000
Total	$3,837,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate:	
Channel Protection, Item 4B	$ 100,000
Initiate and Complete:	
Relocations, Elmore 13A SFFD, 2 Powerlines, Mile 17.1, Item 4A	1,089,000
Continue:	
Lands and Damages	5,000
Complete:	
Channel Protection, Item 4	1,198,000
Planning, Engineering and Design	412,000
Supervision and Administration	220,000
Total	$3,024,000

NON-FEDERAL COST: In accordance with the Flood Control Acts of 1948 and 1966 and the Water Resources Development Acts of 1974 and 1976, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, and rights-of-way.	$4,364,000	
Modify or relocate roads not crossing the project channels where necessary for the construction of the project.	236,000	
Pay all costs of operation, maintenance, and replacement of flood control facilities.		$414,000
Total Non-Federal Costs	$4,600,000	$414,000

STATUS OF LOCAL COOPERATION: Necessary assurances were furnished by the Obion-Forked Deer Basin Authority on 2 June 1972 and were accepted on 14 June 1972. Section 221 of the Flood Control Act of 1970 (PL 91-611) is not applicable to other items of work but is required by Section 3 of the Water Resources Development Act of 1974 (PL 93-251) for the mitigation lands and for the levees authorized by the Water Resources Development Act of 1976 (PL 94-587). Assurances have not been furnished for the levees.

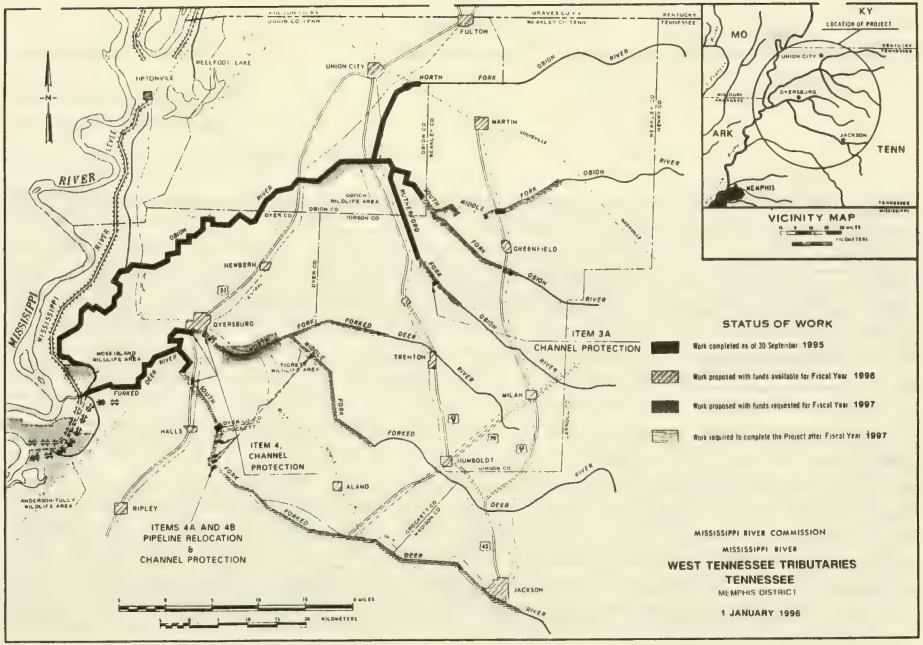
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $131,000,000 is an increase of $3,000,000 from the latest estimate ($128,000,000) presented to Congress (FY 1996). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$2,061,000
Price Escalation on Real Estate	939,000
Total	$3,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A fully coordinated Environmental Impact Statement in final form was forwarded to the Council on Environmental Quality on 4 May 1971. Court action on 2 March 1973 rejected the statement, directed revision of the statement, and stated that the revised statement was subject to District Court review. A final Environmental Impact Statement was submitted to the Council on Environmental Quality on 21 July 1975, and published in the Federal Register on 1 August 1975. The statement was determined inadequate and the injunction was continued by court decision dated 27 January 1978. A supplement to the statement has been prepared to eliminate the deficiencies identified in the Memorandum Decision of 27 January 1978. The draft supplement to the statement was provided to the public for review and to the Environmental Protection Agency for filing and review on 29 April 1982. The final supplement to the statement was forwarded to the Environmental Protection Agency on 9 February 1983. The notice appeared in the Federal Register on 25 February 1983. The Record of Decision was signed by President, Mississippi River Commission on 8 August 1983.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1959 and for construction in FY 1960.

As the result of a lawsuit filed on 23 April 1970, the District Court found the Environmental Impact Statement to be inadequate on 2 March 1973, and enjoined any further construction. On 9 May 1985, the District Court lifted this injunction that had prohibited the Corps from working on portions of the project. Another suit was filed on 23 August 1985 which challenged the Environmental Impact Statement. The District Court denied the request for a temporary restraining order on 23 August 1985 and denied the request for a preliminary injunction on 30 August 1985. The Corps filed a Motion to dismiss the case which was granted by the Court on 5 December 1985. A Notice of Appeal was filed by the Plaintiff on 2 January 1986 to the Sixth Circuit Court of Appeals. On 13 March 1987, the U.S. Sixth Circuit Court of Appeals dismissed the appeal as an impermissible collateral attack. On 18 June 1986 Chester McConnell and Tennessee Environmental Council filed in Chancery Court of Davidson County an appeal and request for judicial review of Water Quality Control Board's final decision and order on Fowlkes Items 1-1 and 1-2 dated 8 May 1986. The Chancery Court affirmed the Board's decision and final order on 18 March 1987. Petitioners appealed to the Court of Appeals of Tennessee, Middle Section, at Nashville, App. No. 87-234-II. On 4 December 1987, the case was remanded to the Tennessee Water Quality Control Board for further findings of facts and conclusions of law in relation to the issue of "issuance of permits for projects involving a portion of the subject river without considering the effect of such projects and/or any other contemplated projects upon the entire river." The Tennessee Water Quality Control Board considered the remanded issue at a hearing on 20 January 1988. Findings of Facts and Conclusions of Law were issued by the Board after affirming their previous decision. Water quality certification for the next planned construction item, Sidonia, was denied by the Tennessee Department of Health and Environment on 18 June 1987. The Corps appealed this decision, but after numerous meetings and discussions with the State in an attempt to arrive at a mutually agreeable plan of improvement for the Sidonia Item, and with no apparent resolution forthcoming, the Corps withdrew the appeal in May 1989. The Corps will not proceed with further construction or acquisition of related mitigation lands for the authorized project until the State of Tennessee provides water quality certification and necessary rights-of-way for construction of the project. By letter dated April 10, 1992, Governor McWherter requested that the West Tennessee Tributaries project be reactivated by incorporating environmentally sensitive guidelines into its design. The state subsequently set up a steering committee composed of representatives from state and Federal agencies and local interest groups. The objective of the steering committee was, through the group discussion process, to develop a consensus plan for reformulation of the project. The committee met monthly and in the December 1993 meeting, they reached a consensus on the type of project the State would support. On April 7, 1994, representatives from the State presented the plan to the Memphis District Commander. The consensus plan, referred to by the State as the "Mission Plan", will require a reformulation of the project to determine its feasibility and Federal interest. A limited evaluation of the Stokes Creek and the Middle Fork Forked Deer River, including Buck Creek, Demonstration Projects, included in the Mission Plan has been completed and is under review.


MISSISSIPPI RIVER COMMISSION
MISSISSIPPI RIVER
WEST TENNESSEE TRIBUTARIES
TENNESSEE
MEMPHIS DISTRICT
1 JANUARY 1996
STATUS OF WORK
Work completed as of 30 September 1995
Work proposed with funds available for Fiscal Year 1996
Work proposed with funds requested for Fiscal Year 1997
Work required to complete the Project after Fiscal Year 1997
ITEM 3A
CHANNEL PROTECTION
ITEM 4,
CHANNEL
PROTECTION
ITEMS 4A AND 4B
PIPELINE RELOCATION
&
CHANNEL PROTECTION
VICINITY MAP
LOCATION OF PROJECT
KY
MO
ARK
TENN
MEMPHIS
UNION CITY
DYERSBURG
JACKSON
MILES
KILOMETERS
NORTH FORK OBION RIVER
SOUTH FORK OBION RIVER
MIDDLE FORK OBION RIVER
FORKED DEER RIVER
MISSISSIPPI RIVER
FULTON
UNION CITY
HIPTONVILLE
WELLFORD LAKE
WARTIN
GREENFIELD
NEWBERN
DYERSBURG
TRENTON
MILAN
HALLS
HUMBOLDT
ALAMO
RIPLEY
JACKSON
MOSS ISLAND WILDLIFE AREA
TIGRE WILDLIFE AREA
ANDERSON-TULLY WILDLIFE AREA
LEVEE

MISSISSIPPI RIVER COMMISSION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO and TN Maintenance, FY 1997

The program request of $133,481,000 provides for the day-to-day operation and ordinary maintenance, and repairs and dredging of the major features of the comprehensive project. It also consists of the revision and publication of alluvial valley maps and navigation charts. The fund requirements are based upon the normal recurring annual expenses determined from experience records during the past years, and the repair and dredging work necessary to maintain the projects in operable condition.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Mississippi River Levees, AR, IL, KY, LA, MS, MO, & TN	5,205,000 (1,153,000) (4,052,000)	5,458,000 (1,103,000) (4,355,000)	1. None. 2. Levee slides at various locations.
Bonnet Carre, LA	782,000 (560,000) (222,000)	1,228,000 (678,000) (550,000)	1. Increased cooperative stream gaging. 2. None.
Mississippi Delta Region Caernarvon, LA	369,000 (329,000) (40,000)	261,000 (261,000) (0)	1. Variation in operation requirements. 2. None.
Revetments and Dikes	33,647,000 (2,362,000) (31,285,000)	43,444,000 (2,818,000) (40,626,000)	1. Variation in survey requirements 2. Revetment and dike repairs.
Dredging	14,961,000 (3,267,000) (11,694,000)	21,657,000 (3,923,000) (17,734,000)	1. Variation in survey requirements. 2. Dredging at various locations.

MISSISSIPPI RIVER COMMISSION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO and TN Maintenance, FY 1997

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Memphis Harbor	1,836,000	1,700,000	
(McKellar Lake), TN	(40,000)	(50,000)	1. None.
	(1,796,000)	(1,650,000)	2. Dredging.
Greenville Harbor, MS	229,000	239,000	
	(3,000)	(0)	1. Variation in survey requirements.
	(226,000)	(239,000)	2. None.
Helena Harbor, AR	2,000	0	
	(0)	(0)	1. None.
	(2,000)	(0)	2. None.
Vicksburg Harbor, MS	199,000	122,000	
	(4,000)	(0)	1. Variation in survey requirements.
	(195,000)	(122,000)	2. None.
Baton Rouge Harbor	204,000	172,000	
(Devil's Swamp), LA	(9,000)	(10,000)	1. None.
	(195,000)	(162,000)	2. None.
Mapping	899,000	1,064,000	
Arkansas	(223,000)	(269,000)	1. Additional mapping updates.
Illinois	(4,000)	(5,000)	1. Additional mapping updates.
Kentucky	(15,000)	(18,000)	1. Additional mapping updates.
Louisiana	(411,000)	(473,000)	1. Additional mapping updates.
Missouri	(37,000)	(47,000)	1. Additional mapping updates.
Mississippi	(141,000)	(166,000)	1. Additional mapping updates.
Tennessee	(68,000)	(86,000)	1. Additional mapping updates.
	(0)	(0)	2. None.

MISSISSIPPI RIVER COMMISSION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO and TN Maintenance, FY 1997

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
St. Francis Basin, AR & MO			
Wappapello Lake, MO	4,519,000 (2,601,000) (1,918,000)	3,545,000 (2,735,000) (810,000)	1. None. 2. Repair and maintenance of recreation facilities.
St. Francis River & Tributaries, AR	8,169,000 (2,881,000) (5,288,000)	9,815,000 (4,000,000) (5,815,000)	1. Additional pumping of flood water. 2. Repair of pumping plant.
White River Backwater, AR	2,117,000 (551,000) (1,566,000)	1,300,000 (600,000) (700,000)	1. None. 2. None.
Lower Arkansas River, AR			
North Bank	405,000 (18,000) (387,000)	156,000 (16,000) (140,000)	1. None. 2. None.
South Bank	102,000 (23,000) (79,000)	121,000 (25,000) (96,000)	1. None. 2. None.
Tensas Basin, AR & LA			
Boeuf and Tensas Rivers	2,259,000 (2,150,000) (109,000)	2,631,000 (2,335,000) (296,000)	1. None. 2. None.

MISSISSIPPI RIVER COMMISSION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO and TN Maintenance, FY 1997

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Red River Backwater	2,430,000 (2,430,000) (0)	2,849,000 (2,849,000) (0)	1. Additional pumping of flood water. 2. None.
Lake No. 9 Pumping Station, KY	1,000 (0) (0)	0 (0) (0)	1. None. 2. None.
Yazoo Basin, MS			
Sardis Lake	3,725,000 (3,382,000) (343,000)	3,946,000 (3,531,000) (415,000)	1. None. 2. None.
Arkabutla Lake	3,104,000 (2,689,000) (415,000)	2,838,000 (2,733,000) (105,000)	1. None. 2. None.
Enid Lake	3,104,000 (2,581,000) (523,000)	2,821,000 (2,595,000) (226,000)	1. None. 2. None.
Grenada Lake	3,840,000 (3,425,000) (415,000)	3,783,000 (3,587,000) (196,000)	1. None. 2. None.
Greenwood	763,000 (756,000) (7,000)	751,000 (751,000) (0)	1. None. 2. None.

MISSISSIPPI RIVER COMMISSION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO and TN Maintenance, FY 1997

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Yazoo City	629,000 (629,000) (0)	750,000 (750,000) (0)	1. Increased cost of electrical service. 2. None.
Main Stem	1,233,000 (968,000) (265,000)	936,000 (936,000) (0)	1. None. 2. None.
Tributaries	1,008,000 (1,008,000) (0)	1,287,000 (1,287,000) (0)	1. Additional surveys. 2. None.
Will M. Wittington Auxiliary Channel	420,000 (364,000) (56,000)	485,000 (404,000) (81,000)	1. None. 2. None.
Big Sunflower	1,786,000 (219,000) (1,567,000)	668,000 (168,000) (500,000)	1. Reduced survey requirements. 2. None.
Yazoo Backwater	469,000 (408,000) (61,000)	393,000 (315,000) (78,000)	1. Additional inspections. 2. None.
Old River, LA	4,221,000 (2,533,000) (1,688,000)	5,025,000 (2,900,000) (2,125,000)	1. Additional surveys and inspections. 2. None.

MISSISSIPPI RIVER COMMISSION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO and TN Maintenance, FY 1997

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Atchafalaya Basin, LA	11,857,000 (4,467,000) (7,390,000)	12,223,000 (5,045,000) (7,178,000)	1. Additional surveys. 2. None.
Lower Red River, LA	69,000 (33,000) (36,000)	56,000 (0) (56,000)	1. None. 2. None.
Bayou Cocodrie & Tributaries, LA	83,000 (83,000) (0)	92,000 (92,000) (0)	1. None. 2. None.
Atchafalaya Basin Floodway System, LA	183,000 (0) (183,000)	150,000 (0) (150,000)	1. None. 2. None.
Inspection of Completed Works	1,220,000	1,515,000	
Arkansas	(382,000)	(475,000)	1. Variation in inspections.
Illinois	(39,000)	(50,000)	1. Variation in inspections.
Kentucky	(22,000)	(28,000)	1. Variation in inspections.
Louisiana	(339,000)	(415,000)	1. Variation in inspections.
Missouri	(176,000)	(223,000)	1. Variation in inspections.
Mississippi	(162,000)	(195,000)	1. Variation in inspections.
Tennessee	(100,000) (0)	(129,000) (0)	1. Variation in inspections. 2. None.

MISSISSIPPI RIVER COMMISSION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO and TN Maintenance, FY 1997

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
TOTAL	116,049,000 (44,047,000) (72,002,000)	133,481,000 (49,076,000) (84,405,000)	1. Reasons for Change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).

STATUS REPORT ON CIVIL WORKS ACTIVITIES IN THE MISSOURI RIVER DIVISION

FISCAL YEAR 1997

COLONEL RICHARD W. CRAIG

DIVISION AREA

The Missouri River Division civil works area covers 529,000 square miles in the north-central United States. This area includes all of Nebraska and parts of nine other states. We operate 6 multipurpose projects, including power, on the Missouri main stem as well as 45 flood control lakes, including 2 power projects on tributary streams, and 22 Section 7 flood control projects built by the Bureau of Reclamation. We also operate the 735-mile Missouri River Bank Stabilization and Navigation Project. The Division headquarters is in Omaha, Nebraska; district offices are in Omaha and in Kansas City, Missouri.

FY 97 BUDGET REQUEST

For the Fiscal Year 1997, our budget request is $2.2 million for General Investigations, $19.3 million for Construction General, and $90.9 million for Operation and Maintenance.

GENERAL INVESTIGATIONS

HIGHLIGHTS OF THE FY 95 PROGRAM

In the General Investigations program for FY 95, the Missouri River Division achieved an execution rate of 119 percent of scheduled expenditures. Effective use was made of Architect-Engineer firms to supplement in-house capability.

HIGHLIGHTS OF THE FY 96 PROGRAM

Our General Investigations program for FY 96 includes completion of the reconnaissance phase on four studies and completion of one feasibility study. We will begin three reconnaissance studies and one PED project.

BUDGET REQUEST FOR FY 97

The $2,198,000 requested for General Investigations will be used to continue eight studies and complete one. We will begin PED on one project and continue on one.

Flood Damage Prevention Studies

Funds are requested to continue four flood damage prevention studies.

Turkey Creek Basin, Kansas and Missouri

The ongoing Turkey Creek Basin feasibility study is considering alternative flood control plans for Turkey Creek overbank flows and hillside runoff in Kansas City, Kansas, and Kansas City, Missouri. Possible flood control measures include channel and bridge modifications along the lowermost two miles of Turkey Creek, diversion tunnels, and a small dam for hillside control. Although plans are preliminary, it appears that a project in the $40 million cost range is feasible. FY 97 funds in the amount of $79,000 will be used to complete the feasibility study.

Swope Park Industrial Area, Kansas City, Missouri

The Swope Park Industrial Area in Kansas City, Missouri, is located along the left bank of the Blue River near 75th Street. This location is approximately 3.5 miles upstream from the Blue River Channel project currently under construction, and approximately 1 mile downstream from the Blue River Basin study near the Dodson Industrial Area. This area sustained damages in excess of $500,000 in a May 1990 flood. The reconnaissance phase of the study is currently scheduled for completion in September 1996. FY 97 funds in the amount of $55,000 will be used to initiate the feasibility study. Possible solutions include a levee or flood wall with related measures.

Antelope Creek, Lincoln, Nebraska

The $175,000 requested for the Antelope Creek study at Lincoln, Nebraska, will be used to continue the feasibility study. The study focus will include detention storage, conduit improvements, and channel alternatives. The city of Lincoln, the Lower Platte South Natural Resources District, and the University of Nebraska are sharing sponsorship of the project.

Lower Platte River and Tributaries, Nebraska

FY 97 funds in the amount of $420,000 will be used to complete the reconnaissance phase and start the feasibility study of the Lower Platte River and Tributaries in Nebraska. There are 13 existing flood damage prevention projects in the study area. The devastating flood of March 1993 demonstrated the value of these projects; but in unprotected areas, two lives were lost and property damage was more than $25 million. The feasibility study is scheduled for completion in September 2001.

Project Review Studies

An amount of $994,000 is required to continue review of five completed projects.

Kanopolis Lake, Kansas

Kanopolis Lake, located in central Kansas, is a unit of the Missouri River basin comprehensive plan for flood control and other purposes. In February 1991, the Kansas Water Office completed an assessment of the potential for a reallocation of the existing sedimentation storage at Kanopolis Lake for water supply. The report concluded that the State of Kansas should pursue such a reallocation with eventual acquisition of the storage under the terms of the 1985 Memorandum of Understanding between the Department of the Army and the State of Kansas. Reallocation of existing sedimentation storage at Kanopolis Lake will meet current needs, but will not be sufficient to satisfy future municipal and industrial water supply requirements. Available funds are being used to complete the reconnaissance study. The likely result of this study is a recommendation for a pool raise to satisfy these additional future water supply requirements. FY 97 funds in the amount of $25,000 will be used to initiate the feasibility phase of the study in July 1997.

Salina, Kansas

Construction of the existing Salina, Kansas, local protection project was completed by the Corps of Engineers in 1967. Hydraulic analysis by the city's engineering staff in connection with proposed municipal development indicates that significant portions of the existing levee would be overtopped by a 100-year-frequency flood event. Overtopping of the existing levee could cause significant flood damage and the potential loss of life. As a result of their analysis, the city requested a reevaluation of the existing flood control project to identify what has caused the reduction in protection and to determine whether a modification is appropriate. The reconnaissance phase of the study will be initiated in September 1996. FY 97 funds in the amount of $302,000 will be used to complete the reconnaissance report. The likely result of this study would be a recommendation to raise several miles of existing levee.

Topeka, Kansas

Construction of a flood protection project at Topeka, Kansas, was completed by the Corps of Engineers in FY 74. Hydraulic analysis by the State of Kansas Department of Transportation and a subsequent study by the city indicate that significant portions of the existing levee system are inadequate to protect against the design 100-500-year frequency flood event. The city of Topeka is very concerned that changes that have occurred to the Kansas River both upstream and through the city may affect current and future development. The reconnaissance phase of the study is scheduled to be initiated in September 1996. FY 97 funds in the amount of $367,000 will be used to complete the reconnaissance report. The likely result is a plan for modifying the existing level of protection, probably by raising several miles of existing Federal levee.

Wilson Lake, Kansas

Wilson Lake, Kansas, was placed in operation in December 1964. The lake provides flood control storage and multipurpose storage for irrigation, navigation, and low-flow regulation. In 1993 the Kansas Water Office requested a reallocation study at Wilson Lake for potential water supply storage for the cities of Hays and Russell, Kansas. Based upon information provided by both the cities and the Kansas Water Office, viable alternatives for dependable water supply are no longer available from traditional sources. The reconnaissance study, scheduled for initiation in September 1996, will evaluate the technical aspects associated with a potential water supply reallocation for Wilson Lake compared to other alternatives for water supply in the region. FY 97 funds in the amount of $155,000 will be used to complete the reconnaissance report. The likely result of the reconnaissance study is a recommendation for reallocation of a portion of the existing storage that would increase vendable outputs at no cost to the Federal government.

Missouri River Levee System Units L455 and R460-471

Construction of the existing Missouri River Levee System Units L455 and R460-471, located in and near St. Joseph, Missouri, was completed by the Corps of Engineers in 1967 and 1968, respectively. These two units were constructed to protect 18,300 acres of industrial, residential and farm land. During the 1993 flood, Unit L455 prevented approximately $176 million in damages, but flood waters were just inches from overtopping the levee. Unit R460-471 failed from overtopping, causing over $65 million in damages. The reconnaissance study, scheduled for completion in May 1996, is reviewing the existing protection levels for both levee units to determine if a higher level of protection is feasible. FY 97 funds in the amount of $145,000 will be used to initiate the feasibility study.

Preconstruction Engineering and Design (PED)

An amount of $475,000 is requested to initiate PED on one project and continue PED on another.

Turkey Creek Basin, Kansas and Missouri

The Turkey Creek Basin feasibility study is scheduled for completion in January 1997. Fiscal Year 1997 funds in the amount of $25,000 will be used to initiate work on a Feature Design Memorandum on conduit/tunnels, and plans and specifications for the downstream channel modification.

Blue River Basin, Kansas City, Missouri

The ongoing feasibility study for Blue River Basin, Kansas City, Missouri, is scheduled to be completed in March 1996. The Feasibility Report will recommend construction of approximately one mile of left-bank levee extending upstream from U.S. Highway 71. This project will provide a 500-year flood damage reduction to 280 acres in the Dodson Industrial Area. Preconstruction engineering and design is scheduled for initiation in September 1996. Fiscal Year 1997 funds in the amount of $450,000 will be used to continue the Design Memorandum for the project.

CONSTRUCTION, GENERAL

HIGHLIGHTS OF FY 95 PROGRAM

In the prior fiscal year, funds provided by the Committee enabled us to complete one flood control construction project and essentially complete another. We finished the Papillion Creek and Tributaries Lakes project, which included four reservoirs and channel work through a part of Omaha, Nebraska. The Brush Creek project, running through a highly urbanized commercial section of Kansas City, Missouri, was dedicated in June 1995. This project, while still uncompleted, reduced the flood crest of the near-record 1993 flood event by about three feet, preventing an estimated $50 million in damages in the Plaza business area. For the total FY 95 Construction, General program, the Missouri River Division achieved 102 percent of scheduled expenditures.

HIGHLIGHTS OF FY 96 PROGRAM

Late in FY 95, a significant contract was awarded for the Perry Creek, Iowa, flood control project. This will allow substantial progress toward providing urgently needed protection to the metropolitan and downtown areas of Sioux City. Similarly, a recent contract for the 12th to 19th Street reach of our Blue River Channel project will greatly accelerate progress on this undertaking. A third effort receiving considerable funding this fiscal year is the Missouri River Fish and Wildlife Mitigation project, for which continued real estate acquisition will allow us to move forward with appropriate mitigation measures in future years. The Thurman to Hamburg, Iowa, project will be completed, and pumping facilities will be available for draining flood waters from agricultural areas behind existing levees on the East Nishnabotna River.

BUDGET REQUEST FOR FY 97

Our request under Construction General includes funding for five continuing construction projects, two new flood control projects, and a new major rehabilitation project.

Category	Projects	Request
Navigation	1	$ 1,600,000
Flood Control	6	17,363,000
Major Rehabilitation	1	337,000
Total	8	19,300,000

Navigation

Funds in the FY 97 request will be used for construction on one navigation project.

Missouri River Fish and Wildlife Mitigation,
Iowa, Nebraska, Kansas, and Missouri

Construction was initiated on the Missouri River Fish and Wildlife Mitigation project in FY 92. The project will mitigate losses to fish and wildlife resulting from construction and operation of the Missouri River Bank Stabilization and Navigation project, which extends from Sioux City, Iowa, to the mouth near St. Louis, Missouri. The mitigation consists of habitat development on nearly 17,000 acres of public lands, and acquisition and habitat development of nearly 30,000 acres of private land. We have acquired nearly 16,000 acres at 14 sites, completed 3 sites, and awarded contracts on 3 additional sites. FY 96 funds are being used to complete construction of Benedictine Bottoms, Missouri, and Hamburg Bend, Iowa; to initiate construction at the Weldon Spring, Missouri site; and to continue land acquisition, planning, engineering and design, and construction management. FY 97 funds in the amount of $1,600,000 will be used to complete construction at the Weldon Spring site; continue land acquisition; and continue planning, engineering and design, and construction management.

Flood Control

FY 97 funds will be used for construction of six flood control projects.

Missouri River Levee System,
Iowa, Nebraska, Kansas, Missouri

The Missouri River Levee System provides a series of levees and related works along both sides of the Missouri River from Sioux City, Iowa, to the mouth to protect agricultural areas and small towns from flooding. A total of 29 units have been constructed. Two unconstructed units are in the active category

as separable elements of the project. Half of the FY 97 funds request of $400,000 for this project will be used to continue engineering and design on Unit L385, opposite Kansas City, Kansas. A Project Cooperation Agreement is scheduled for execution in December 1996 for this unit, and land acquisition is scheduled to start in FY 97. The sponsor has voluntarily agreed to provide all costs for the Quindaro Bend portion of the unit associated with land development in addition to the cost sharing requirements in the Water Resources Development Act of 1986.

The other half of the FY 97 funds request will be used to continue planning, engineering, and design on Unit L142, near Jefferson City, Missouri. A General Reevaluation Report, scheduled for completion in October 1997, will document whether construction of Unit L142 is economically feasible.

Perry Creek, Iowa

The $5,363,000 requested for Perry Creek, Iowa, will allow acceleration of construction on this project. We will enlarge the existing channel and conduit through Sioux City and install a basin-wide flood warning system. The flood problem is severe under the present stage of urban development. The improved channel and new stilling basin will provide capacity for a 100-year flood.

Blue River Channel, Kansas City, Missouri

Construction of Stages 1 and 2 of the Blue River Channel project in Kansas City, Missouri, was completed in December 1992. This work included paving of the bottom and side slopes of approximately 3,500 feet of channel modification through the Armco Steel area. The 12th to 19th Streets Channel Modification contract and two railroad relocation contracts were awarded in FY 95. FY 96 funds are being used to continue construction of the channel modification; for railroad relocations; for planning, engineering and design of future contracts; and for construction management. Funds requested for FY 97, in the amount of $8,300,000, will be used to continue the same activities. The next contract, for Channel modification from 19th Street to Stadium Drive, is scheduled for award in April 1998.

Missouri National Recreational River, Nebraska and South Dakota

The Missouri National Recreational River is a segment of the National Wild and Scenic Rivers System. Construction of recreation facilities has been completed at two sites, and work to improve habitat for threatened and endangered species has been done. The $100,000 requested for FY 97 will be used to continue monitoring of habitat; to work with the National Park Service in their updating of the project's management plan; and to coordinate with various Federal, state, and local agencies, as well as individuals and organizations, that have an interest in the project.

Wood River, Grand Island, Nebraska

One of our new construction starts is the Wood River project at Grand Island, Nebraska. The project basically involves construction of a five-mile long channel to divert Wood River flood flows away from the city and into the nearby Platte River. Levees will be built on both sides of the channel. FY 97 funds in the amount of $1,000,000 will be used to initiate construction.

Big Sioux River at Sioux Falls, South Dakota

Our other new construction start for FY 97 is the Big Sioux River at Sioux Falls, South Dakota. The project modifies an existing Federal project that was completed in 1965, but which offers only about a forty-year level of protection. The modified project, which will provide 100-year protection, consists of raising levees, raising a diversion dam, reconfiguring a chute and stilling basin, and making bridge improvements. FY 97 funds in the amount of $2,200,000 will be used to initiate construction.

OPERATION AND MAINTENANCE, GENERAL

HIGHLIGHTS OF THE FY 95 PROGRAM

I am proud to note the performance last season of our system of reservoirs. Runoff above Sioux City, Iowa, in 1995 was 153 percent of normal. In 98 years of record keeping, only 1978 was higher. Our impoundment of upstream water and near-record low releases from the mainstem dams greatly alleviated the threat of flooding downstream, where heavy rains swelled basin streams once again. The six mainstem dams prevented $1.9 billion in flood damages in 1995, the highest single year since the $4.5 billion prevented during the flood of 1993. These huge dams on the Missouri have now saved $9.6 billion in flood damage, or eight times the cost of their construction.

The increased storage behind the big dams allowed a 10-day extension of the navigation season and an increase in hydropower production to 4 percent above normal for the year. Near-record generation in the fall was offset by the near-record low generation during the spring and summer months when releases were reduced due to downstream flooding. Operation of the dams contributed also to the preservation of threatened and endangered bird species which nest on sand bars during the summer. When operational requirements dictated higher releases that would raise stream levels, we supported endangered species by removing and incubating their eggs, then releasing fledged birds back into the wild.

Vice-President Al Gore's "Hammer Award" was bestowed on the Kansas City District. The award was presented for the accomplishment of members of the Harry S. Truman power plant and district staff who joined in a Process Action Team concept to identify and fix repair problems that have existed with the powerhouse turbines since 1985. Their effort resulted in a cost savings of $1.1 million and a plan to have all six turbines repaired by 1997.

The Missouri River Division achieved 103 percent of scheduled Operation and Maintenance expenditures in FY 95.

HIGHLIGHTS OF THE FY 96 PROGRAM

This past winter the basin experienced the worst cold weather conditions since the winter of 1983-1984. During mid-January, temperatures plummeted to record lows, reaching 40 degrees below zero and at times accompanied by wind chills of 80 below. Our Reservoir Control Center monitored the river conditions and adjusted releases at the six main stem dams to prevent flooding and maintain adequate river levels to keep downstream domestic water supply and power plant cooling water intakes operating. The uninterrupted service of these domestic water supply intakes are vital to nearly 4 million basin residents who depend on the Missouri River for water supply. The continued release of water at the dams is also critical to meeting the needs of more than 2 million customers being served by the hydropower generation during this near-record cold spell. The record-breaking cold of January was followed by a complete turnaround, with a near-record warm spell during mid-February. This early unseasonable warm-up caused a rapid melt of the plains snowpack over frozen ground, resulting in a record February runoff into the reservoirs. The resulting February runoff set a new 96-year record high for the month and was 355 percent of normal. This exceeded the old record set in 1971 by more than 30 percent. During this period of record runoff, the main stem dams almost totally eliminated the severe ice jam flooding that would have occurred without the reservoirs.

The system of reservoirs had nearly 70 percent of their flood storage capacity filled during the floods of 1995. By high releases during the late summer, fall, and winter, the stored flood waters were evacuated to only 5 percent of the flood storage capacity. Currently 19 percent of the flood storage is filled, and we are making record high releases now to continue the storage evacuation prior to the spring flood season. This early evacuation will prepare the system for handling the melt of the mountain snowpack and the spring and summer rains. It will also give the Missouri River navigators the opportunity to enter the river before the official April 1 date for start of flow support for the 1996 navigation season.

BUDGET REQUEST FOR FY 97

Our Operation and Maintenance program for FY 97 is $90.9 million. This figure is more than 80 percent of the total Missouri River Division budget request. Requested funds will support operation and maintenance activities for flood control structures that provide average annual benefits of $44 million; for a 735-mile, 9-foot by 300-foot navigation channel that supports an average of 2 million tons of commodities annually; for recreation facilities at 45 lakes with 415 recreation areas which provide for over 170 million visitor hours of recreational activities; for natural resource management and stewardship activities for 896,000 acres of land and 1.3 million water surface acres which provide habitat for a thriving fish and wildlife population; and power generation activities at eight multi-purpose projects with hydropower plants which generate an annual average of more than 10 billion kilowatt-hours and revenues of over $90 million.

Category	Number of Projects		Amount
Navigation -- Channels	1	1/	$ 6,210,000
Flood Control -- Reservoirs	37	2/	27,811,000
Flood Control -- Channels	2	3/	869,000
Multiple Purpose Power	9	4/	56,040,000
TOTALS	49		90,930,000

1/ 735 miles of the Missouri River, Sioux City to the Mouth

2/ Includes Scheduling of Flood Control Operations and counts separable elements. There are 10 reservoirs in the Salt Creek, Nebraska, project; 4 in the Papillion Creek and Tributaries Lakes, Nebraska, project; and 2 in the Little Blue River Lakes, Missouri, project.

3/ Includes Inspection of Completed Works.

4/ Includes 8 dam projects and the Missouri River Master Water Control Manual.

Work continues on the Master Water Control Manual Review and Update for the Missouri River Mainstem System. The public comment period for the Draft Environmental Impact Statement, or Draft EIS, was closed on 1 March 1995. A Revised Draft EIS is being prepared, to include identification of impacts of water control plan alternatives on drainage of agricultural lands landward of levees. Results of revised analyses for Missouri and Mississippi River navigation and for Missouri River native river fish are also being documented. As with the original Draft EIS, the Revised Draft EIS will be subjected to a public comment period, during which public hearings will be held. A Final EIS is scheduled for completion in March 1998. The Master Manual will then be revised, allowing development of the next Annual Operating Plan for the Missouri River Mainstem System. Under the current schedule, the earliest any change could take place in the operation of the system is the spring of 1999.

EMERGENCY RESPONSES SINCE FY 96 TESTIMONY

As a result of the 1995 Midwest Flood, public sponsors for 8 Federal and 52 non-Federal projects requested emergency assistance under the Corps Rehabilitation and Inspection Program. Of the total requests received, 52 projects were determined to be eligible to receive Corps assistance, and 8 were ineligible. Ineligible projects consisted of 1 Federal project and 7 non-Federal projects. All of these projects had minor damages, except 1 non-Federal project which was ineligible because the property protected by the levee was purchased by the Natural Resources Conservation Service for mitigation. All but 3 of the projects were complete or substantially complete by 1 March 1996, which is in time for possible further threats during the spring and summer.

CONCLUSION

The Missouri River Division has a proud history of accomplishment. We look forward with confidence to the challenges of our evolving role in the future.

U. S. ARMY CORPS OF ENGINEERS
CIVIL WORKS PROGRAM

CONGRESSIONAL SUBMISSION
FISCAL YEAR 1997

MISSOURI RIVER DIVISION

Budgetary information will not be released outside the Department of the Army until 18 March 1996.

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

MISSOURI RIVER DIVISION

Table of Contents

	Page No.
Surveys	
Antelope Creek, Lincoln, NE	5
Kanopolis Lake, KS	8
Lower Platte River and Tributaries, NE	6
Missouri River Leveee System Units L455 and R460-471, MO and KS	13
Salina, KS	10
Swope Park Industrial Area, Kansas City, MO	3
Topeka, KS	11
Turkey Creek Basin, KS and MO	2
Wilson Lake, KS	12
Preconstruction Engineering and Design	
Blue River Basin, Kansas City, MO	16
Turkey Creek Basin, KS and MO	15
Construction	
Blue River Channel, Kansas City, MO	33
Big Sioux River at Sioux Falls, SD	18
Garrison Dam and Powerplant, ND (Major Rehab)	29
Missouri National Recreational River, NE and SD	37
Missouri River Fish and Wildlife Mitigation, IA, NE, KS, and MO	43
Missouri River Levee System, IA, NE, KS, and MO	47
Perry Creek, IA	58
Wood River, Grand Island, NE	23
Operation and Maintenance	63

Justification of Estimates for Civil Function Activities
Department of the Army

Summary Missouri River Division

	FY 1996 Allocations $	FY 1997 Request $	Increase or Decrease $
General Investigations			
Surveys	1,230,000	1,723,000	493,000
Preconstruction Engineering and Design	452,000	475,000	23,000
Subtotal, General Investigations	(1,682,000)	(2,198,000)	(516,000)
Construction, General			
Construction	14,318,000	18,963,000	4,645,000
Major Rehabilitation	0	337,000	337,000
Dam Safety Assurance	0	0	0
Subtotal, Construction, General	(14,318,000)	(19,300,000)	(4,982,000)
Operation and Maintenance, General			
Project Operation	58,189,000	58,132,000	-57,000
Project Maintenance	32,716,000	32,798,000	82,000
Subtotal, Operation and Maintenance	(90,905,000)	(90,930,000)	(25,000)
	==========	==========	==========
TOTAL, MISSOURI RIVER DIVISION	106,905,000	112,428,000	5,523,000

23-577 O - 96 - 13

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional To Complete After FY 1997 $
1. SURVEYS - NEW: None					
2. SURVEYS - CONTINUING:					
a. Navigation Studies: None.					
b. Flood Damage Prevention Studies: The amount of $729,000 is requested to continue four studies in FY 1997.					
KANSAS					
Turkey Creek Basin, KS and MO	1,770,000	1,609,000	82,000	79,000	0

The Turkey Creek basin is a 23-square-mile area within Kansas City, Missouri; Kansas City, Kansas; and suburbs in Johnson and Wyandotte Counties. Turkey Creek flows into the Kansas River just 3 miles upstream from the confluence of the Kansas and Missouri Rivers. The basin is nearly 100 percent urbanized, and a significant amount of development exists in the flood plain. A dual flood threat exists in the study area which consists of Turkey Creek overbank flows and localized hillside runoff. Either flood source can cause considerable damage. Floods inundate highly developed areas along Southwest Boulevard and in the Central Industrial District in Kansas City, Missouri, as well as in Kansas City, Kansas. Five damaging floods have occurred since 1977, and there is a high level of concern by local interests. The flood of record occurred in July 1993, causing one fatality and damages estimated at $20 million. Study sponsors are the cities of Kansas City, Kansas, and Kansas City, Missouri. An amendment to the Feasibility Cost Sharing Agreement (FCSA) was signed on 20 October 1992. A second amendment to the FCSA was signed by Kansas City, Missouri, on 26 May 1995 and by Kansas City, Kansas, on 2 June 1995.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1997 — Missouri River Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional To Complete After FY 1997 $

2b. Flood Damage Prevention Studies: KANSAS, Turkey Creek Basin, KS and MO (Continued)

Fiscal Year 1996 funds are being used to continue the cost shared feasibility study. The funds requested for FY 1997 will be used to complete the feasibility phase. The estimated cost of the feasibility phase is $2,900,000, which is being shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$3,220,000
Reconnaissance Phase (Federal)	320,000
Feasibility Phase (Federal)	1,450,000
Feasibility Phase (Non-Federal)	1,450,000

The reconnaissance phase was completed in February 1989. The feasibility study is scheduled for completion in January 1997.

MISSOURI

Swope Park Industrial Area, Kansas City	585,000	90,000	144,000	55,000	296,000

The Blue River drains a 272 square-mile area, much of which is a highly urbanized part of the Kansas City Metropolitan Region. About 56 percent of the basin lies in Johnson County, Kansas, and the remainder is in Cass and Jackson Counties, Missouri. Flooding has been a major problem in the basin for many years. A channel modification project is currently under construction on the 12-mile reach approaching the Missouri River.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional To Complete After FY 1997 $

2b. Flood Damage Prevention Studies: MISSOURI, Swope Park Industrial Area, Kansas City (Continued)

A serious flood problem remains along the Blue River upstream of 63rd Street. The Swope Park Industrial Area was studied during the Blue River Basin, Kansas and Missouri, Reconnaissance Study, but no economically justified plan was identified for it at that time. However, the May 1990 flood brought higher water surface elevations along the river than were previously anticipated, causing damages to the Swope Park Industrial Area in excess of $500,000. Subsequent evaluation indicated an increased potential for an economically justified flood control plan. The city of Kansas City, Missouri, the likely sponsor, requested a restudy of the area by letter dated 31 May 1991. That letter included an understanding of cost sharing requirements for the study. The city expressed continued interest in the study and indicated an awareness of the Administration's proposed criteria for a Federal role in a flood damage reduction project by letter dated 30 May 1995.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase at full Federal expense. If the reconnaissance report is certified to be in accord with policy, the funds requested for Fiscal Year 1997 will be used to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $702,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$936,000
Reconnaissance Phase (Federal)	234,000
Feasibility Phase (Federal)	351,000
Feasibility Phase (Non-Federal)	351,000

The reconnaissance phase is scheduled for completion in September 1996. A completion date for the feasibility study is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional To Complete After FY 1997 $
2b. Flood Damage Prevention Studies (Continued)					
NEBRASKA					
Antelope Creek, Lincoln	838,000	472,000	59,000	175,000	132,000

Antelope Creek is a right bank tributary of Salt Creek in Lincoln, Nebraska. Antelope Creek causes flood problems because of reductions in the drainage way and rapid runoff resulting from urbanization of the area downstream of Holmes Park Dam. Estimated annual damages are $1.1 million. Potential solutions include detention storage basins and/or construction of a channel along a route west of the existing channel. The city of Lincoln, the Lower Platte South Natural Resources District, and the University of Nebraska are all sponsoring the project. A feasibility cost sharing agreement was signed in February 1995.

Fiscal Year 1996 funds are being used to continue the feasibility phase. The funds requested for Fiscal Year 1997 will also be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $986,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,331,000
Reconnaissance Phase (Federal)	345,000
Feasibility Phase (Federal)	493,000
Feasibility Phase (Non-Federal)	493,000

The reconnaissance phase was completed in February 1995. A completion date for the feasibility study is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional To Complete After FY 1997 $
2b. Flood Damage Prevention Studies: NEBRASKA (Continued)					
Lower Platte River and Tributaries	1,991,000	164,000	327,000	420,000	1,080,000

The study area is in the eastern third of the state of Nebraska. The area includes the Lower Platte River from just below the confluence with the Wood River to the confluence with the Missouri River, the Loup River from Fullerton to the confluence with the Lower Platte, Salt Creek from above Lincoln to the confluence with the Lower Platte, and the Elkhorn River from Norfolk to the confluence with the Lower Platte. There are two major and seven minor tributaries to the Platte River in the study reach, 27 communities, and several environmentally sensitive areas. The study area, about 750 square miles, with over 6,000 square miles of contributing area, is subject to frequent, severe flooding that causes estimated annual damages of nearly $14 million. Existing projects prevent about $6 million a year in damages. Significant flooding occurred in March 1993, forcing the evacuation of 1,400 people from their homes. The flood killed two people and devastated road and bridge systems, public and private utilities, and farm equipment and facilities. Interstate 80 near Lincoln was closed for more than 24 hours. The water system for the city of Lincoln was seriously damaged; and there was damage in the towns of Norfolk, West Point, Scribner, Winslow, Nickerson, Arlington, Waterloo, Fullerton, Columbus, Schuyler, and Cedar Creek. Damages totaled over $25 million. The declared disaster area included 14 counties. All damages occurred outside of the 13 existing flood protection projects in the basin. These projects prevented over $18 million in damages for this event alone, and prevented an additional $10 million in damages from the summer 1993 flooding.

The existing area hydrology, being more than 20 years old, is of questionable value in predicting and correcting flood problems. The reconnaissance study is reviewing hydrology of the Lower Platte River, including contributions from the Elkhorn and Loup Rivers, is reexamining flood and related erosion and sedimentation damages, and will formulate a wide range of alternative solutions.

The state of Nebraska, the Nebraska Natural Resources Commission (NNRC), the Lower Platte South Natural Resources District (NRD), Lower Elkhorn NRD, Papio-Missouri River NRD, and the Lower Platte North NRD have stated their intent to support a feasibility study and any resulting projects. The NNRC will be the lead agency in these efforts. The Governor of Nebraska sent a letter dated 27 April 1993 requesting the study. In addition, supporting requests were received from the Lower Platte North NRD, dated 27 April 1993; from the Papio-Missouri River NRD, dated 9 April 1993; and from the Lower

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional To Complete After FY 1997 $

2b. Flood Damage Prevention Studies: NEBRASKA, Lower Platte River and Tributaries (Continued)

Platte South NRD, dated 18 May 1993.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase at full Federal expense. If the reconnaissance report is certified to be in accord with policy, the funds requested for FY 97 will be used to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $3,000,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$ 3,491,000
Reconnaissance Phase (Federal)	491,000
Feasibility Phase (Federal)	1,500,000
Feasibility Phase (Non-Federal)	1,500,000

The reconnaissance phase is scheduled for completion in October 1996. A completion date for the feasibility study is being determined.

2c. Shoreline Protection Studies: None

2d. Special Studies: None

2e. Comprehensive Studies: None

2f. Review of Deferred Projects: None

2g. Review of Completed Projects: An amount of $994,000 is required to continue review of five completed projects.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional To Complete After FY 1997 $
2g. Review of Completed Projects (Continued)					
KANSAS					
Kanopolis Lake	913,000	200,000	50,000	25,000	638,000

Kanopolis Lake, located in central Kansas, is one unit of the Missouri River basin comprehensive plan for flood control and other purposes authorized by the Flood Control Act approved June 28, 1938, as modified by subsequent acts. The project purposes include flood damage reduction for areas along the Smoky Hill and Kansas Rivers, recreation, abatement of stream pollution, maintenance of a minimum stream flow, and reduction of flood heights on the Missouri and Mississippi Rivers. Additional project purposes of irrigation, municipal and industrial (M&I) water supply, fish and wildlife conservation and development, and environmental preservation were authorized by Public Law 94-423 and the Reclamation Authorizations Act of 1976. Although reallocation of 162,500 acre-feet of the initial flood-control capacity was authorized for irrigation, water supply, and low-flow supplementation, Kanopolis Lake has not been structurally modified to impound waters for the additional project purposes.

Currently, there is one M&I water supply withdrawal being made from Kanopolis Lake. Interest in water supply storage has been expressed by the Kansas Water Office, and other local governments. In February 1991, the Kansas Water Office completed an assessment of the potential for a reallocation of the existing sedimentation storage at Kanopolis Lake for water supply. The report concluded that the State of Kansas should pursue such a reallocation with eventual acquisition of the storage under the terms of the 1985 Memorandum of Understanding (MOU) between the Department of the Army and the State of Kansas. Kanopolis Lake was not included in the 1985 MOU. Reallocation and acquisition of existing sedimentation storage at Kanopolis Lake may meet current needs, but will not be sufficient to satisfy future M&I requirements.

The likely result of this study is a recommendation for a pool raise to satisfy additional water supply requirements. This issue was partially addressed in the Kansas and Osage Rivers Feasibility study approved on 9 August 1989. Yield determinations were made, and a preliminary estimate of the structural costs for a pool raise was completed. However, the cost of storage would depend on a determination as to whether MOU terms would apply. Technical issues concerning

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional To Complete After FY 1997 $

2g. Review of Completed Projects: KANSAS, Kanopolis Lake (Continued)

the operation of the spillway after a pool raise, and the structural modifications required at the dam are also being investigated. The Kansas Water Office, recognizing the need to initiate study efforts as soon as possible, officially requested on 2 May 1991 that the Corps of Engineers investigate pool raise issues for future water supply for the State of Kansas and indicated awareness of the cost sharing requirements for the study. The State expressed continued interest in pursuing additional water supply and indicated an understanding of cost sharing responsibilities by letter dated 22 May 1995.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase at full Federal expense. If the reconnaissance report is certified to be in accord with policy, the funds requested for FY 1997 will be used to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,326,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,576,000
Reconnaissance Phase (Federal)	250,000
Feasibility Phase (Federal)	663,000
Feasibility Phase (Non-Federal)	663,000

The reconnaissance phase is scheduled for completion in October 1996. A completion date for the feasibility study is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional To Complete After FY 1997 $
2g. Review of Completed Projects: KANSAS (Continued)					
Salina	340,000	0	23,000	302,000	15,000

Salina is located in central Kansas, in a region drained by the Smoky Hill River, Mulberry Creek, and Dry Creek. More than 17,000 residential units, with an estimated total value of $1.3 billion, are located within the flood plain, as are two light industrial parks. A flood control project was authorized for the city by the Flood Control Act of 1954. The project was completed in 1967 at a total Federal cost of $3,878,668. Latest available information indicates the project has prevented $17,443,000 in flood damages through 31 December 1993. Storms in July 1993 caused water to back up on the levee slopes, but the protection system was not seriously threatened.

Preliminary hydraulic analysis by the city in connection with proposed municipal development indicates that significant portions of the Federally constructed flood control project would be overtopped by the 100-year frequency flood event. Because Salina is extremely flat, failure of the project through overtopping of the levee system could be catastrophic. The lack of protection could result in the loss of Federal Emergency Management Administration (FEMA) certification, which would cause economic hardship on current and future development. The city of Salina requested the study by letter dated 26 May 1992. Hydraulic and hydrology data will be updated to verify the frequency of existing protection.

Fiscal Year 1996 funds will be used to initiate the reconnaissance phase at full Federal expense. Fiscal Year 1997 funds will be used to complete the reconnaissance phase. A completion date for the reconnaissance phase is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional To Complete After FY 1997 $
2g. Review of Completed Projects: KANSAS (Continued)					
Topeka	387,000	0	5,000	367,000	15,000

The Kansas River runs through the center of Topeka, Kansas, the state's capital. All of Topeka and most of south Topeka are located in the protected flood plain. Construction of a flood protection project at Topeka was completed in Fiscal Year 1974 at a total Federal cost of $21,175,000. The project consists of about 38 miles of levee, 10 miles of channel modification, 9 storm-water pumping plants, numerous pressure relief wells and other appurtenances. The project has prevented an estimated $229,280,000 in flood damages through December 1994, with an estimated $57,792,000 prevented in July and August 1993.

Hydraulic analysis by the State of Kansas Department of Transportation and a subsequent study by the city indicate that significant portions of the existing levee system at Topeka are inadequate to protect against the design 100 - 500-year frequency flood event. The city's study estimated that portions of the levee system may provide less than 100-year frequency flood protection. The city is very concerned about changes that have occurred to the Kansas River both upstream and through Topeka and how those changes may affect current and future development within the city. The growing industrial/commercial and residential development protected by the levee system is estimated to have a total value of several billion dollars. Failure of the levee system by overtopping could result in millions of dollars in damages and the loss of life.

This situation is further complicated by design discharge assumptions that were used for levee design that are no longer accurate. The initial design discharge assumptions included the beneficial effects of then existing, authorized and potential upstream flood control lakes. All of the authorized lake projects upstream of Topeka were constructed except for Grove and Onaga, which have been deauthorized. None of the potential projects was ever authorized. The direct impact to Topeka and several other downstream communities is that uncontrolled flood discharges and stages are greater than originally envisioned, and the corresponding level of protection at Topeka is degraded as a result. This situation compounds the riverine changes previously discussed that have occurred over time. Hydraulic and hydrology data will be updated to verify the frequency of protection. The city of Topeka requested the reconnaissance study by letter dated 26 March 1992.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional To Complete After FY 1997 $

2g. Review of Completed Projects: KANSAS, Topeka (Continued)

Fiscal Year 1996 funds will be used to initiate the reconnaissance phase at full Federal expense. Fiscal Year 1997 funds will be used to complete the reconnaissance phase. A completion date for the reconnaissance phase is being determined.

Wilson Lake	160,000	0	5,000	155,000	0

Wilson Lake, Kansas, was authorized by the Flood Control Act approved 22 December 1944, as modified by subsequent acts. Construction began in April 1961, and the project was placed in operation in December 1964. The dam is located on the Saline River in Russell County, Kansas, about 50 miles west of Salina, 10 miles north of Wilson, and 20 miles east of Russell, Kansas. Wilson Lake provides flood control storage and multipurpose storage for irrigation, navigation, and low-flow regulation.

The Kansas Water Office's letter dated 11 May 1993 requested a reallocation study at Wilson Lake for potential water supply storage for the cities of Hays and Russell, Kansas. The two cities have indicated a need for additional water supply sources and a desire to utilize Wilson Lake. Viable alternatives for dependable water supply are no longer available from traditional sources, based upon information provided by both the cities and the Kansas Water Office Non-traditional sources must be evaluated in order to ensure that all alternatives have been considered before decisions are made that could dramatically affect existing water usage or potential growth for the region. The reconnaissance study will evaluate the technical aspects associated with a potential water supply reallocation for Wilson Lake compared to other alternatives for water supply for the region. The likely result of the reconnaissance phase study is a recommendation for reallocation of existing storage that would increase vendable outputs at no construction cost to the Federal government, which is in accord with Administration policy. An Initial Appraisal Report, approved in November 1993, documents the potential for reallocation at Wilson Lake and recommends further study. The Kansas Water Office and the cities of Hays and Russell, Kansas, are aware of the feasibility cost sharing requirements.

Fiscal Year 1996 funds will be used to initiate the reconnaissance phase at full Federal expense. Fiscal Year 1997 funds will be used to complete the reconnaissance study. The reconnaissance study is scheduled for completion in September 1997, which is 12 months after initiation.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional To Complete After FY 1997 $
2g. Review of Completed Projects (Continued)					
MISSOURI					
Missouri River Levee System, Units L455 and R460-471, MO and KS	1,875,000	225,000	525,000	145,000	980,000

Missouri River Levee System Units L455 and R460-471 were authorized as part of a comprehensive plan in the Flood Control Act of 1944. Construction of Unit L455 was completed in 1967 at a cost of $4.7 million, and construction of Unit R460-471 was completed in 1968 at a cost of $3.9 million. The two levee units are located on opposite sides of the Missouri River in and near St. Joseph, Missouri. These two levee units were designed and constructed to provide flood protection for a Missouri River flow of 325,000 cubic feet per second with 2 feet of freeboard. Flood flows crested on 26 July 1993 at an estimated 335,000 cubic feet per second. The main stem dams constructed by the Corps upstream of the area lowered the river stage approximately 2.7 feet. Unit L455 protected 7,500 acres of industrial, residential, and farm land, preventing approximately $176 million in damages; but flood waters were inches from overtopping the levee. Overtopping would have caused catastrophic damages to an industrial area with estimated assets of $1 billion and an annual payroll in excess of $50 million. Unit R460-471 was constructed to protect Elwood and Wathena, Kansas, Rosecrans Memorial Airport and Air National Guard Base in Missouri, and 10,800 acres of farm land; but this unit failed from overtopping during the 1993 flood, causing over $65 million in damages.

The reconnaissance study will review the existing protection levels for both levee units to determine if a higher level of protection is feasible. The study will consider both of these units because an increase in the protection level for one unit will have an effect on the other unit's level of protection. Impacts on other levees in the area would also be considered. The hydraulics will be updated to verify the frequency of existing protection, to analyze the requirements for these units, and to determine effects upstream from these units.

The study of Unit L455 was requested by the South St. Joseph Drainage and Levee District and the St. Joseph Area Chamber of Commerce in letters dated 14 and 21 April 1994, respectively. The levee district's letter indicated an understanding of the cost sharing requirements. Letters requesting a study of Unit R460-471 were received from the city of Elwood, Kansas, dated 21 April 1994; the city of Wathena, Kansas, dated 18 April 1994; and the Elwood-Gladden Drainage District,

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional To Complete After FY 1997 $

2g. Review of Completed Projects: MISSOURI, MRLS Units L455 and R460-471 (Continued)

dated 31 May 1994. The drainage district's letter indicated an understanding of cost sharing requirements.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase at full Federal expense. If the reconnaissance report is certified to be in accord with policy, the funds requested for Fiscal Year 1997 will be used to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $2,250,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$3,000,000
Reconnaissance Phase (Federal)	750,000
Feasibility Phase (Federal)	1,125,000
Feasibility Phase (Non-Federal)	1,125,000

The reconnaissance phase is scheduled for completion in November 1996. A completion date for the feasibility study is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional To Complete After FY 1997 $

3. PRECONSTRUCTION ENGINEERING AND DESIGN (PED) - NEW: None

4. PRECONSTRUCTION ENGINEERING AND DESIGN - CONTINUING:

a. Navigation: None
b. Flood Control: The amount of $475,000 is required to initiate PED on one project and continue PED on another

KANSAS

Turkey Creek Basin, KS and MO	825,000	0	0	25,000	800,000

The Turkey Creek basin is a 23-square-mile area within Kansas City, Kansas, and suburbs in Johnson and Wyandotte Counties. Turkey Creek flows into the Kansas River just 3 miles upstream from the confluence of the Kansas and Missouri Rivers. The basin is nearly 100 percent urbanized, and a significant amount of development exists in the flood plain. A dual flood threat exists in the study area which consists of Turkey Creek overbank flows and localized hillside runoff. Either flood source can cause considerable damage. Floods inundate highly developed areas along Southwest Boulevard and in the Central Industrial District in Kansas City, Missouri, as well as in Kansas City, Kansas. Five damaging floods have occurred since 1977, and there is a high level of concern by local interests. The flood of record occurred in July 1993, causing one fatality and damages estimated at $20 million.

The project to be recommended for authorization is estimated to cost $44.0 million, with an estimated Federal cost of $22.0 million and an estimated non-Federal cost of $22.0 million, including construction of channel modification and tributary flood water diversion. The tentative average annual benefits amount to $5.5 million, all for flood control. The benefit-cost ratio is 1.5 to 1, based upon the latest economic analysis dated March 1995. The cities of Kansas City, Missouri, and Kansas City, Kansas, will become joint sponsors of the project. Latest evidence of sponsor support is execution of the second amendment to the Feasibility Cost Sharing Agreement signed by Kansas City, Missouri, on 26 May 1995 and by Kansas City, Kansas, on 2 June 1995, and continuation of the quarterly coordination meetings. The cost of work during the preconstruction engineering and design phase, to be initiated after the current fiscal year, will be shared at 75 percent Federal and 25 percent non-Federal, in accord with recent guidance.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional To Complete After FY 1997 $

4b. Flood Control: KANSAS, Turkey Creek Basin, KS & MO (Continued)

In accord with the cost sharing and financing concepts currently being proposed by the Department of the Army and being discussed among the Administration and the Congress, local interests will be required to provide lands, easements, rights-of-way and disposal areas for borrow and excavated or dredged material; modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent of the costs allocated to flood control in cash during the period of construction; contribute an additional amount in cash or credits to bring the total non-Federal share of costs allocated to structural flood control to 50 percent; and bear all costs of operation, repair, replacement, and maintenance of flood control facilities. Communities must agree to adopt additional flood plain management activities, beyond the current requirement to participate in the National Flood Insurance Program, in order to qualify for Federal participation in a structural flood damage reduction project under the terms as described above. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of storm water runoff, and preservation of open space.

Fiscal Year 1997 funds will be used to initiate work on a Feature Design Memorandum on Conduits/Tunnels, and plans and specifications on the downstream channel modification. A completion date for preconstruction engineering and design is being determined.

MISSOURI

Blue River Basin, Kansas City	1,800,000	0	7,000	450,000	1,343,000

The Blue River drains a 272 square-mile area, much of which is a highly urbanized part of the Kansas City Metropolitan Region. About 56 percent of the basin lies in Johnson County, Kansas, and the remainder is in Cass and Jackson Counties, Missouri. Flooding has been a major problem in the basin for many years. A channel modification project is currently under construction on the 12-mile reach approaching the Missouri River. A serious flood problem remains, particularly

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional To Complete After FY 1997 $

4b. Flood Control: MISSOURI, Blue River Basin, Kansas City (Continued)

along the Blue River from 75th Street upstream to its Indian Creek tributary. The May 1990 flood caused approximately $1.5 million in damages to the approximately 1-mile reach of this project area.

The project to be recommended for authorization is estimated to cost $17.1 million, with an estimated Federal cost of $8.55 million and estimated non-Federal cost of $8.55 million. Recommended work includes construction of approximately 1-1/4 miles of levee to provide flood protection to 280 acres in the Dodson Industrial Park and surrounding area. The average annual benefits, all flood control, amount to $1.9 million. The benefit-to-cost ratio is 1.2 to 1 at 1 October 1995 price levels, based upon the latest economic analysis dated February 1996. Kansas City, Missouri, is the project sponsor. The city has sponsored other projects and understands the cost sharing requirements.

In accordance with the cost sharing and financing concepts currently being proposed by the Department of the Army and being discussed among the Administration and the Congress, local interests will be required to provide lands, easements, rights-of-way and disposal areas for borrow and excavated or dredged material, modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent of the costs allocated to flood control in cash during the period of construction; contribute an additional amount in cash or credits to bring the total non-Federal share of costs allocated to structural flood control to 50 percent; and bear all costs of operation, repair, replacement, and maintenance of flood control facilities. Communities must agree to adopt additional flood plain management activities, beyond the current requirement to participate in the National Flood Insurance Program, in order to qualify for Federal participation in a structural flood damage reduction project under the terms as described above. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of storm water runoff, and preservation of open space.

Fiscal Year 1996 funds will be used to initiate the design memorandum. Fiscal Year 1997 funds will be used to complete the design memorandum and to initiate plans and specifications. The completion date for preconstruction engineering and design is being determined.

APPROPRIATION TITLE: Construction, General - Flood Control, Local Protection

PROJECT: Big Sioux River at Sioux Falls, South Dakota (New)

LOCATION: Sioux Falls is located on a large bend of the Big Sioux River and at the confluence with Skunk Creek in the south half of Minnehaha County in southeastern South Dakota.

DESCRIPTION: The project builds upon an existing project. It consists of raising an existing levee from the diversion dam to the upstream tie-off, raising the diversion channel levee, modifying the chute and stilling basin, raising the diversion dam, raising the levees on Skunk Creek, raising Big Sioux levees downstream of Skunk Creek, and providing for bridge improvements.

AUTHORIZATION: The project is budgeted for initiation of construction under proposed legislation.

REMAINING BENEFIT-REMAINING COST RATIO: 1.3 to 1 at 7 3/4 percent

TOTAL BENEFIT-COST RATIO: 1.3 to 1 at 7 3/4 percent

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in November 1993 at October 1993 price levels.

SUMMARIZED FINANCIAL DATA:

			ACCUM. PCT. OF EST. FED COST	STATUS: (1 JAN 1995)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$ 17,150,000				
Estimated Non-Federal Cost		17,150,000		Entire Project	0	Being Determined
Cash Contribution	$ 10,320,000					
Other Costs	$ 6,830,000					
Total Estimated Project Cost		$ 34,300,000				
Allocations to 30 September 1995		$ 1,135,000				
Conference Allowance for FY 1996		390,000				
Allocation for FY 1996		363,000 1/				
Allocations through FY 1996		1,498,000	9			
Allocation Requested for FY 1997		2,200,000	22			

1/ Reflects $101,000 reduction for savings and slippage and $74,000 reprogrammed to the project.

SUMMARIZED FINANCIAL DATA:

		ACCUM. PCT. OF EST. FED COST	STATUS: (1 JAN 1995)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Programmed Balance to Complete after FY 1997	$13,452,000				
Unprogrammed Balance to Complete after FY 1997	0				

PHYSICAL DATA

Relocations:
2 Utilities, 3 Bridges, and 4 Structures

Levee:
Length: 11.5 miles
Level of Protection: 100-year flood

Bridges:
Raise: 3 roadway and 1 railroad

Spillway/Stilling Basin:
Spillway: Raise Walls
Stilling Basin: Raise Walls

JUSTIFICATION: The project will provide urgently needed flood protection to the metropolitan areas of Sioux Falls, South Dakota. The flood problem is severe under the present stage of urban development. There have been eight floods in the city in the past forty-five years with the largest in 1969, a 100-year event. This 100-year flood today would cause $111 million in damage based on current economic analysis. This project will provide protection from a 100-year event. The average annual damages to the 2,707 structures in the 100-year flood plain is $2.7 million. The average annual damages without the project are $5.7 million. The average annual damages with the project are $2.3 million. With this project in place the annual benefits derived will be $3.4 million, all from flood damage protection.

Annual Benefits	Amount ($000)
Flood Damage Prevention (Urban)	
Structure and Contents	2,389.8
External Damages	262.8
Emergency Costs	185.4
Flood Insurance Costs	111.9
Flood Plain Fill Costs	468.0
Total Benefits	3,417.9

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate land Acquisition Activity	$ 3,000
Initiate Levee Construction	16,000
Initiate Spillway/Stilling Basin Construction	1,939,000
Planning Engineering and Design	108,000
Construction Management	134,000
Total	$ 2,200,000

NON-FEDERAL TOTAL COST: In accordance with the cost sharing and financing concepts proposed by the Administration, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments during Construction	Annual Operation, Maintenance, Repair Rehabilitation and Replacement Costs
Provide all lands, easements, right-of-ways, and dredged material disposal areas.	$ 2,868,000	
Relocate utilities, buildings, roads, bridges (except railroad bridges), and other facilities required for construction of the project.	$ 3,962,000	
Pay 5 percent of the cost allocated to flood control, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	$ 1,715,000	$32,450
Pay 25 percent of the costs allocated to flood control to bring the total non-Federal share of flood control to 50 percent.	$ 8,605,000	
Total Non-Federal Costs	$17,150,000	$32,450

The non-Federal sponsor will be required to make all payments concurrently with project construction.

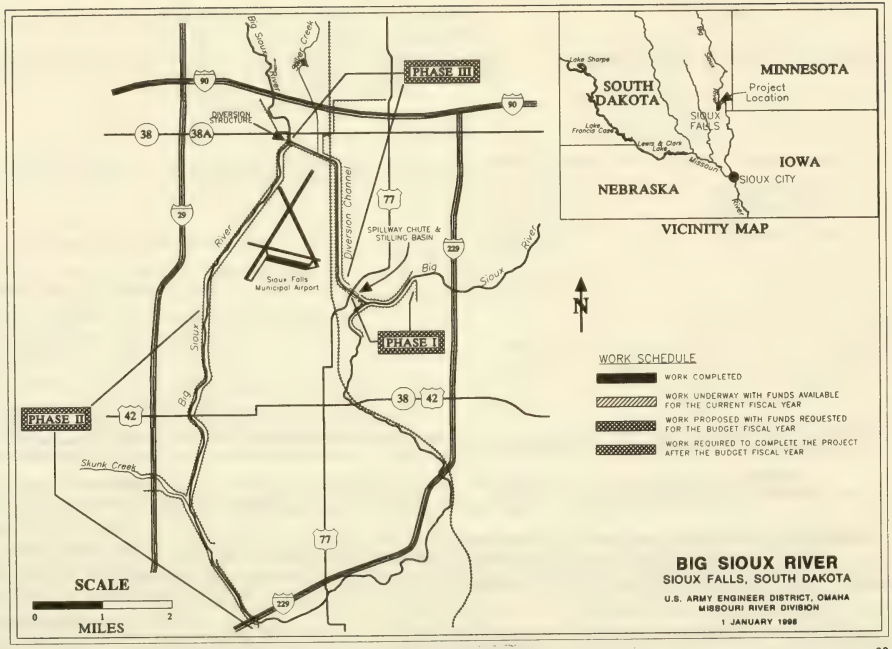
FLOODPLAIN MANAGEMENT REQUIREMENT: Communities must agree to adopt additional flood plain management activities beyond the requirement to participate in the National Flood Insurance Program to qualify for Federal participation in a structural flood damage reduction project. These activities, which are being discussed between the Administration and Congress, may include public information and eduction on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of storm water runoff, and preservation of open space.

STATUS OF LOCAL COOPERATION: The City of Sioux Falls is the non-Federal sponsor. A Project Cooperation Agreement with the city of Sioux Falls is being negotiated, and is scheduled to be executed in April 1997. Non-Federal funds will come from a state grant and assessment of beneficiaries. All Non-Federal financing has been arranged under the 75/25 cost-sharing assumption.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $17,150,000 is a decrease of $9,850,000 from the latest estimate ($27,000,000) presented to Congress (FY 1996). The adjustment of the cost sharing formula for Federal and non-Federal interests to 50/50 from the previous 75/25 caused an increase in the non-Federal share of $8,575,000 and an equal corresponding decrease in the Federal share, as well as a decrease in the price escalation on construction features.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An environmental impact statement was not required for this project. An Environmental Assessment and a Finding Of No Significant Impact were completed with the feasibility report.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 94, and work is ongoing. The mitigation work will consist of creating 0.8 acres of wetlands to replace the wetlands lost by the raising of existing levees.


PHASE III
PHASE II
PHASE IIB
DIVERSION STRUCTURE
Diversion Channel
SPILLWAY CHUTE & STILLING BASIN
Sioux Falls Municipal Airport
Big Sioux River
Skunk Creek
90
38
38A
29
77
229
42
SCALE
0
1
2
MILES
N
WORK SCHEDULE
WORK COMPLETED
WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR
WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR
BIG SIOUX RIVER
SIOUX FALLS, SOUTH DAKOTA
U.S. ARMY ENGINEER DISTRICT, OMAHA
MISSOURI RIVER DIVISION
1 JANUARY 1996
MINNESOTA
Project Location
SOUTH DAKOTA
SIOUX FALLS
IOWA
SIOUX CITY
NEBRASKA
Lake Sharpe
Lake Francis Case
Lewis & Clark Lake
Missouri River
VICINITY MAP

APPROPRIATION TITLE: Construction, General - Local Protection, Flood Control

PROJECT: Wood River, Grand Island, NE (New)

LOCATION: This project is located in Hall County Nebraska, approximately midway between the city of Grand Island and Interstate 80.

DESCRIPTION: The proposed project consists of a five mile long diversion channel with levees on both sides. The channel will divert Wood River flood flows to the Platte River. The diversion structure will be located downstream from the Highway 281 bridge that crosses the Wood River. The diversion channel will begin at that point and run eastward to the Platte River. Five new bridges will be required over the diversion channel, including one bridge for the Union Pacific Railroad (UPRR). In addition, a two mile long tie-off levee and small diversion channel will be built west of Highway 281 to prevent Wood River flood flows from spilling into the Warm Slough basin nearby and outflanking the diversion channel.

AUTHORIZATION: The project is budgeted for initiation of construction under proposed legislation.

REMAINING BENEFIT-REMAINING COST RATIO: 2.3 to 1 at 7 3/4 percent

TOTAL BENEFIT-COST RATIO: 2.3 to 1 at 7 3/4 percent

BASIS OF BENEFIT-COST RATIO: Benefits are taken from the Feasibility Report Addendum dated March 1994, at October 1993 price levels.

SUMMARIZED FINANCIAL DATA:

			STATUS (1 Jan 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$5,900,000	Entire Projec	0	Being Determined
Estimated Non-Federal Cost		$5,900,000			
Cash Contributions	$ 590,000		PHYSICAL DATA		
Other Costs	$5,310,000				
Total Estimated Project Cost		$11,800,000			

Division: Missouri River District: Omaha Wood River, Grand Island, Nebraska
18 March 1996

SUMMARIZED FINANCIAL DATA (continued)

Real Estate: 1250 acres

Channels:
Length- 7 miles
Warm Slough diversion- 420 cfs
Wood River diversion- 7,000 cfs
Excavation- 743,000 cy
Rip Rap- 1,700 tons

Levees:
Length- 12 miles
Embankment- 465,000 cy
Average height- 4 ft

Relocations:

Bridges -
5 County Road
1 Railroad

Utilities -
Water lines - 800 lf
Sewer lines - 300 lf
Gas lines - 1,900 lf
Comm Cables - 7,000 lf
Elect Power - 5,500 lf

Fencing - 600 lf

		ACCUM. PCT OF EST FED COST
Allocations to 30 September 1995	$ 680,000	
Conference Allowance for FY 1996	200,000	
Allocation for FY 1996	170,000 1/	
Allocations through FY 1996	850,000	7
Allocation Requested for FY 1997	1,000,000	16
Programmed Balance to Complete after FY 1997	4,050,000	
Unprogrammed Balance to Complete after FY 1997	0	

1/ Reflects $52,000 reduction for savings and slippage and assumes $22,000 reprogrammed into the project to complete PED.

JUSTIFICATION: The Wood River basin originates about 80 miles west of Grand Island, Nebraska and drains approximately 770 square miles above Grand Island. Flooding and erosion in the project area are widespread and long in duration. Since 1899, 41 flood events have been recorded. This is an average flood occurrence of about once every 2 years. The most recent flood was in the summer of 1993. The proposed project will provide 100-year flood protection. As of Oct 1993, $187.7 million of residential and $31.2 million of commercial property is subject to flood damage. The average annual damages without the

project are $2.5 million. The average annual damages with the project are $0.6 million. The flood of record occurred in 1967 and caused an estimated $13.4 million in damages. Petitions containing 1,034 signatures sent to congressional representatives in 1995 indicate strong local support for this project. Average annual benefits are as follows:

Annual Benefits	Amount
Flood Damage Reduction:	
Urban	$1,790,000
Rural	130,000
Total Benefits	$1,920,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Real Estate Review	$ 22,000
Railroad Bridge Relocation	860,000
Planning, Engineering and Design	48,000
Construction Management	70,000
Total	$ 1,000,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts proposed by the Administration, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Provide all lands, easements, right-of-ways, and dredged material disposal areas.	$ 1,533,000	
Modify or relocate of utilities, buildings, roads, bridges (except railroad bridges), and other facilities, required for construction of the project.	3,777,000	

NON-FEDERAL COSTS (continued):

Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Pay 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities.	590,000	$ 30,000
Total Non-Federal Costs	$ 5,900,000	$ 30,000

The non-Federal sponsors will be required to make all payments concurrently with project construction.

FLOODPLAIN MANAGEMENT REQUIREMENT: Communities must agree to adopt additional flood plain management activities beyond the requirement to participate in the National Flood Insurance Program to qualify for Federal participation in a structural flood damage reduction project. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of storm water runoff, and preservation of open space.

STATUS OF LOCAL COOPERATION: The draft Project Cooperation Agreement (PCA) was reviewed by the Central Platte Natural Resources District (the sponsor). The sponsor has found the draft PCA to be acceptable without any changes to the model PCA. After the project is authorized, the final PCA package will be developed and approved by the District Commander for signing. The scheduled execution of the PCA is April 1997.

The potential sources of non-Federal funding and their approximate share of project funds are shown below:

Central Platte Natural Resources District (NRD)	$ 4,726,000
City of Grand Island, Nebraska	704,000
Hall County	235,000
Merrick County	235,000

The largest share of the non-Federal funding will come from the State of Nebraska through the NRD. The Central Platte NRD has already requested funding from the Nebraska Resources Development Fund. The project meets the eligibility requirements for this program and will be reviewed upon completion of the necessary design and engineering reports. Since the project

meets current Federal water resources guidance, it is anticipated that the Development Fund will provide substantial funding for the project.

The Central Platte NRD has already obtained over 75 percent of its share. With its large tax base and revenue-generating capability, the NRD is very capable of meeting its remaining funding requirements.

The City of Grand Island has a very large tax base. As stated in its 31 January 1994 letter, the City will provide its share from sales tax revenue and will not require an increase in taxes. The Grand Island share represents about one percent of its annual budget.

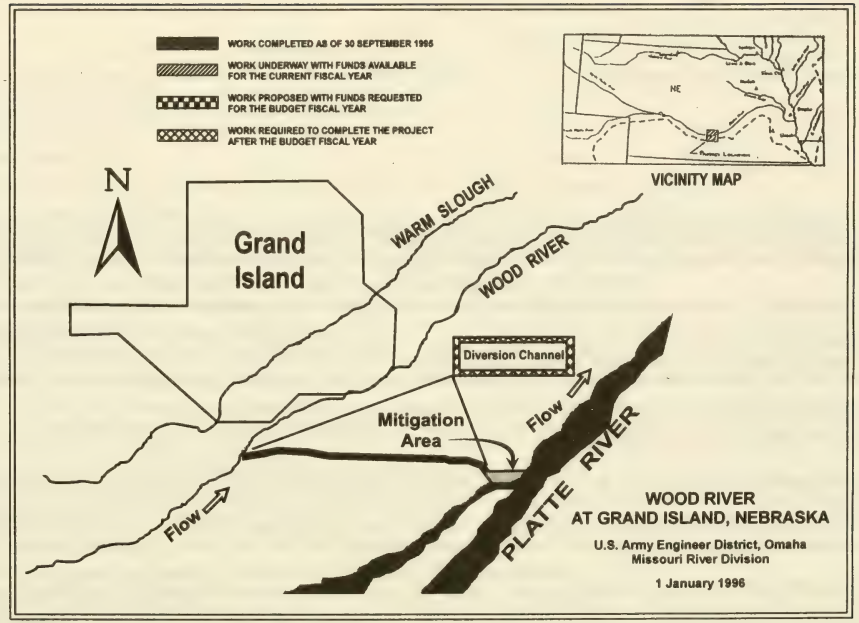
Hall County also has a large tax base and revenue-generating capability. As indicated in its 18 January 1994 letter, Hall County can meet its share from its General Budget without requiring additional taxes.

Merrick County has not provided much information regarding its tax base or revenue. However, in their 2 February 1994 letter, they indicated that they could provide their share from property tax revenues. In light of the relatively small amount of funds to be provided by Merrick County, it is anticipated that they will meet their share with little difficulty.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $5,900,000 is a reduction of $140,000 from the latest estimate ($6,040,000) presented to Congress (FY 96). The adjustment of the cost sharing formula for federal and non-federal interests to 50/50 from the previous 75/25 caused an increase in the non-federal share of $140,000 and an equal corresponding decrease in the federal share.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Feasibility Report/Environmental Assessment was completed in March 1994. The "Findings of No Significant Impact" was signed by the District Commander in April 1993.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1993. The mitigation work will consist of creating 9.2 acres of wetlands to replace the wetlands lost during construction of the diversion channel and the acquisition of approximately 30 acres of wet meadow for protection as a natural heritage and educational area.


WORK COMPLETED AS OF 30 SEPTEMBER 1995
WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR
WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR
NE
VICINITY MAP
N
Grand Island
WARM SLOUGH
WOOD RIVER
Diversion Channel
Mitigation Area
Flow
Flow
PLATTE RIVER
WOOD RIVER
AT GRAND ISLAND, NEBRASKA
U.S. Army Engineer District, Omaha
Missouri River Division
1 January 1996

APPROPRIATION TITLE: Construction, General (Major Rehabilitation)

PROJECT: Garrison Dam and Power Plant, North Dakota (New)

LOCATION: The Garrison Dam Project is located in McLean and Mercer Counties in North Dakota on the Missouri River approximately 77 river miles upstream of Bismarck near Riverdale, North Dakota.

DESCRIPTION: Garrison Dam and Reservoir is a multi-purpose project consisting of a rolled earth-filled dam with a sheet pile cutoff, a hydroelectric power plant, and a reservoir with storage capacity of 23,821,000 acre feet for flood control, navigation, power, recreation, irrigation, and municipal supply. Five hydraulic turbine-driven generating units with a total plant rated capacity of 518 MW and the operation and maintenance facilities are housed in the powerhouse. The present hydropower benefits directly associated with Garrison Power Plant include (1) clean, non-polluting power generation for the region, and (2) average power generation revenues of about $33.6 million per year to the U.S. Treasury. This major rehabilitation project will replace the existing turbine runners on all five units with new runners designed to improve reliability and maximize efficiency over a broad range of operating conditions.

AUTHORIZATION: Based on the Major Rehabilitation Report dated March 1995 for the Garrison Dam and Power Plant and approved 4 August 1995.

REMAINING BENEFIT-REMAINING COST RATIO: 2.6 to 1 at 7 3/4 percent

TOTAL BENEFIT-COST RATIO: 2.6 to 1 at 7 3/4 percent

BASIS OF BENEFIT-COST RATIO: Benefits are from the Garrison Dam & Power Plant Major Rehabilitation Evaluation Report approved 27 February 1995 at 1994 price levels.

SUMMARIZED FINANCIAL DATA:

			STATUS (1 Jan 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$36,100,000			
Estimated Non-Federal Cost		0	Entire Project	0	Being Determined
Cash Contributions	$ 0				
Other Costs	0				
Total Estimated Project Cost		36,100,000			

SUMMARIZED FINANCIAL DATA: (Continued)

		ACCUM PCT. OF EST. FED COST
Allocations to 30 September 1995	0	
Conference Allowance for FY 1996	0	
Allocation for FY 1996	0	
Allocations through FY 1996	0	0
Allocation Requested for FY 1997	337,000	1
Programmed Balance to Complete after FY 1997	35,763,000	
Unprogrammed Balance to Complete after FY 1997	0	

PHYSICAL DATA

Power Installation: 3 Units at 109,250 KW
2 Units at 95,000 KW
Average Gross Head 161 ft.

JUSTIFICATION: All five of the Garrison turbine runners have experienced cracking at the trailing edges of their runner blades near the runner crown. Cracking was first discovered on Unit 3 in 1958 during an annual inspection. Cracking has continued through the years such that occasional repairs of blades in Unit 1 and annual-to-biennial repairs of blades in Units 2 through 5 must be performed. The continued cracking jeopardizes the future reliability of the runners, creating a potential for long outages due to a possible failure requiring complete shutdown of an affected unit. While no failures have occurred, continued weld repairs produce increasingly unfavorable metallurgy and residual stress distribution, increasing the probability of a failure. Studies indicate that without the proposed correction the failure probability will gradually increase until failure occurs. Installation of new improved turbine runners for all five units will avoid such reliability problems, both present and future, by correcting the cyclic loading which causes the turbine runner blade cracking. This will decrease operation and maintenance costs and extend the life of the hydropower plant. Lost plant efficiency will be restored and efficiency will be increased beyond the original 1950's design without an increase in cost over a replacement option using in-kind turbine runners. Average annual benefits are as follows:

Annual Benefits	Amount
Deferred Maintenance Benefits	$ 1,640,000
Restored Efficiency Benefits	4,120,000
Efficiency Improved Benefits	2,845,000
Total Benefits	$ 8,605,000

FISCAL YEAR 1997: The requested amount of $337,000 will be used for the development of plans and specifications.

Division: Missouri River District: Omaha Garrison Dam and Power Plant, North Dakota
18 March 1996

NON-FEDERAL COSTS: There is no requirement for a non-Federal sponsor for this project. Garrison Dam is a multi-purpose project, and the cost for the turbine runner modifications will benefit hydropower generation only. The hydropower from Garrison Powerplant is marketed by Western Area Power Administration (WAPA), thru which project costs are repaid to the Treasury. WAPA has provided a letter stating that they "will be able to market any additional power gained through increased efficiency of the turbines."

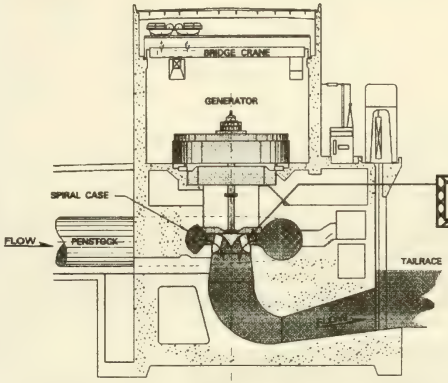
STATUS OF LOCAL COOPERATION: N/A

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $36,100,000 is the initial project cost estimate presented to Congress and is based on the Garrison Dam & Power Plant Major Rehabilitation Evaluation Report dated March 1995.

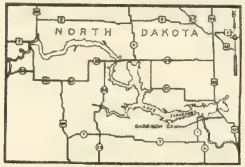
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The proposed rehabilitation is not a major Federal action that would significantly affect the quality of the human environment, and therefore did not require the preparation of an environmental impact statement. The U.S. Fish and Wildlife Service concurred with the "Finding Of No Significant Impact."

OTHER INFORMATION: This project consists of replacing all 5 turbine runners at the Garrison Dam Project. The estimate assumes that all 5 generators will be removed and reinstalled by the Garrison maintenance staff. No repairs other than cleanup will have to be done on the generators. Turbine related work will be done under a furnish and install contract. Machining and painting work will be subcontracted. The units being removed will be torched and sold as scrap metal, except for one unit which will become a display for the plant tourist. The estimate assumes that only one unit at a time will be off line. A one month allowance has been included in the estimate for startup and testing for each unit prior to starting on the next unit. There is no requirement to undertake fish and wildlife mitigation measures in conjunction with this rehabilitation project.

413



TRANSFER SECTION THRU
GARRISON DAM POWER PLANT



VICINITY MAP

WORK COMPLETED AS OF 30 SEPTEMBER 1995

WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR

WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR

WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR

GARRISON DAM & POWER PLANT
NORTH DAKOTA
MAJOR REHABILITATION

U.S. Army Engineer District, Omaha
Missouri River Division

1 January 1996

APPROPRIATION TITLE: Construction, General - Local Protection Projects (Flood Control)

PROJECT: Blue River Channel, Kansas City, Missouri (Continuing)

LOCATION: The project is located along the Blue River and tributaries in Kansas City, Jackson County, Missouri, and extends from near its mouth (located at Missouri river mile 358.0) to 63rd Street, channel mile 12.5.

DESCRIPTION: The project plan consists of a channel modification along 12.5 miles of the Blue River channel providing flood protection for a once in 30-year flood and reducing flooding for less frequent events.

AUTHORIZATION: 1970 Flood Control Act

REMAINING BENEFIT - REMAINING COST RATIO: 6.5 to 1 at 6 5/8 percent.

TOTAL BENEFIT-COST RATIO: 5.6 to 1 at 6 5/8 percent.

INITIAL BENEFIT-COST RATIO: 1.6 to 1 at 6 5/8 percent (FY 1979).

BASIS OF BENEFIT-COST RATIO: Benefits are from the Supplemental Report dated 24 October 1990 to the General Design Memorandum and approved on 14 December 1990 at October 1990 price levels.

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST
Estimated Federal Cost	$194,000,000	
Estimated Non-Federal Other Costs	32,000,000	
Total Estimated Project Cost	$226,000,000	
Allocations to 30 September 1995	$74,622,000	
Conference Allowance for FY 1996	9,600,000	
Allocation for FY 1996	6,679,000 1/	
Allocations through FY 1996	81,301,000	42
Allocation Requested for FY 1997	$8,300,000	46
Programmed Balance to Complete after FY 1997	104,399,000	
Unprogrammed Balance to Complete after FY 1997	0	

STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	42	Being Determined

PHYSICAL DATA

Bridge Alterations at Federal Cost:	
Railroad Bridges - Modify - 15	$23,545,000
Bridge Alterations at Non-Federal Cost:	
Highway Bridges - Modify - 4	$7,272,000
Channel Improvement: Length	
Main Stem, Blue River Channel	12.5 miles

Division: Missouri River District: Kansas City Blue River Channel, Kansas City, Missouri

18 March 1996

23-577 O - 96 - 14

1/ Reflects $796,000 reduction assigned as savings and slippage, and $2,125,000 reprogrammed from the project

JUSTIFICATION: The Blue River basin lies completely in the Kansas City Metropolitan Region, with a 1990 population of 1,566,000 persons. The basin drains an area of 272 square miles and is subject to cloudbursts, prolonged rainstorms, floods, and extended drought periods. The maximum flood of record in the basin occurred in September 1961 and caused an estimated $8 million in damages. An August 1982 flood caused an estimated $3.3 million in damages, and an October 1986 flood along the Brush Creek tributary of the river caused an estimated $209,000 in damages in the lower flood plain. A major flood occurred on the lower portion of the river in May 1990 and caused damages estimated at $100.8 million. The July 1993 flood was not severe in this basin, causing damages estimated at $60,000. The authorized project would have prevented all but minor damages caused by the 1961 event, and all damages caused by the later events. The channel project provides for about a 30-year level of protection to 3,400 acres in the lower basin, including the Blue River Valley Industrial District. Estimated annual average benefits, all flood control, based on 1 October 1990 prices, are $43.6 million, of which $41.2 million are existing benefits and $2.4 million are future benefits.

FISCAL YEAR 1997: The requested amount of $8,300,000 will be applied as follows:

Continue relocation of railroads	$2,823,000
Continue construction of channel	4,617,000
Engineering and Design	610,000
Construction Management	250,000
Total	$8,300,000

NON-FEDERAL COSTS: Local interests are required to furnish without cost to the United States all lands, easements, and rights-of-way required for construction and subsequent maintenance of the project; hold and save the United States free from damages due to construction; perform without cost to the United States necessary highway, highway bridge, and utility alterations required in connection with this project; maintain and operate the project after completion in accordance with regulations prescribed by the Secretary of the Army; and adequately inform all affected persons, at least annually, that the project will not provide complete flood protection. The investment is broken down as follows:

Lands and Damages	$18,286,000
Relocations	12,054,000
Contingencies	1,660,000
Total	$32,000,000

It is estimated that the average annual expenditure for operation, maintenance and replacements will total $75,000 (1 October 1995).

Division: Missouri River District: Kansas City Blue River Channel, Kansas City, Missouri

18 March 1996

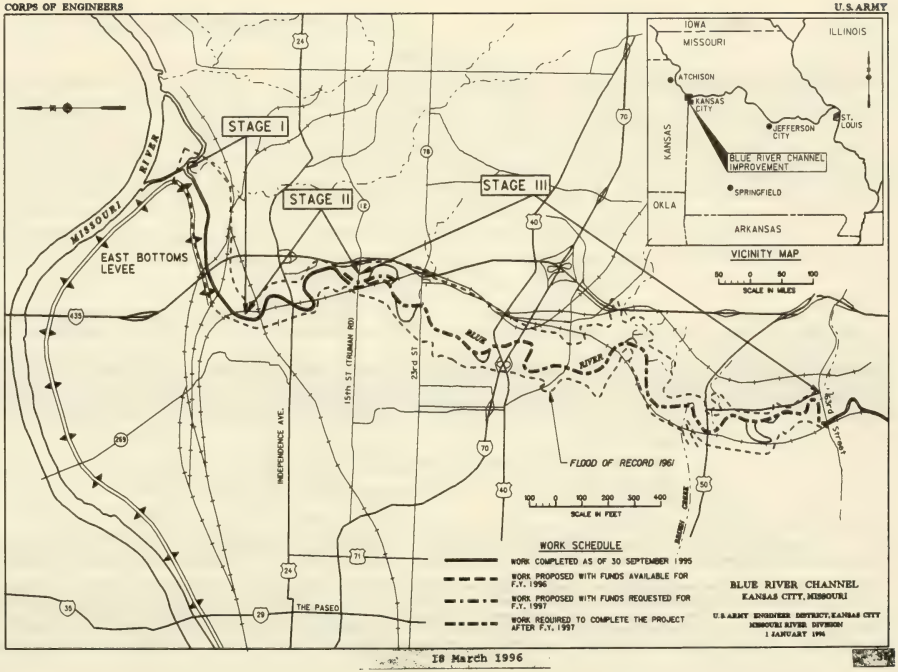
STATUS OF LOCAL COOPERATION: The Section 221 Agreement was signed by the Kansas City District Engineer on 8 September 1983. The City of Kansas City, Missouri, has provided all of the rights-of-way for Stages 1 and 2. Stage 3 right-of-way requirements have been provided to the city and the city has begun acquisition. The current non-Federal cost estimate of $32,000,000 is an increase of $100,000 from the latest estimate of $31,900,000 presented to Congress (FY 1996). The change is due to adjustments in the estimated price escalation through the construction period.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $194,000,000 is an increase of $9,000,000 from the latest estimate ($185,000,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$9,000,000
Design Changes	290,000
Post Contract Award and Other Estimating Adjustments	-290,000
Total	$9,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: Final statement on Blue River Basin plan made in connection with preauthorization studies was filed with the Council on Environmental Quality (CEQ) on 13 November 1970. A more complete draft statement on the Blue River Basin plan, including specific information on the impacts of the Blue River Channel, was filed with the CEQ on 11 April 1974. The final statement was forwarded to HQUSACE on 24 October 1974, and was filed with the CEQ on 8 September 1975.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1973, and funds to initiate construction were appropriated in FY 1979.



18 March 1996

APPROPRIATION TITLE: Construction, General (Flood Control)

PROJECT: Missouri National Recreational River, Nebraska and South Dakota (Continuing)

LOCATION: The Missouri River between Gavins Point Dam and Ponca State Park, Nebraska. This includes Cedar and Dixon Counties in Nebraska, and Yankton, Clay, and Union Counties in South Dakota.

DESCRIPTION: Development of the river to protect and enhance the existing qualities which resulted in its classification as a National Recreational River under the Wild and Scenic Rivers System. The qualities include scenic, recreational, fish and wildlife, and cultural values of the river reach. Development includes recreation facilities, river access sites, threatened and endangered species habitat, erosion protection, and acquisition of scenic easements.

AUTHORIZATION: Section 707 of the National Parks and Recreation Act of 1978.

REMAINING BENEFIT-REMAINING COST RATIO: Not available because monetary benefits have not been quantified.

TOTAL BENEFIT-COST RATIO: N/A

INITIAL BENEFIT-COST RATIO: N/A

BASIS OF BENEFIT-COST RATIO: N/A

SUMMARIZED FINANCIAL DATA			
Estimated Federal Cost			$21,000,000
Programmed Construction		$ 7,527,000	
Unprogrammed Construction		13,473,000	
Estimated Non-Federal Cost			640,000
Programmed Construction			
Cash Contribution	$ 0		
Other Costs	640,000		
Estimated Non-Federal Cost		0	
Unprogrammed Construction			
Cash Contributions	0		
Other Costs	0		

STATUS (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Myron Grove River Access	100	
Habitat for Threatened and Endangered Species (Phase I)	100	
Yankton-Riverside Park Access Recreation Site	100	
Scheduled Elements	40	
Remaining Elements	0	Unscheduled
Fish Ladder	0	Sep 2006
Habitat for Threatened and Endangered Species (Phase 2)	100	
Pallid Sturgeon	0	Sep 2008

SUMMARIZED FINANCIAL DATA (continued)

Total Estimated Programmed Construction Costs	8,167,000
Total Estimated Unprogrammed Construction Costs	13,473,000
Total Estimated Project Cost	$21,640,000
Allocations to 30 September 1995	1,956,000
Conference Allowance for FY 1996	20,000
Allocation For FY 1996	18,000 1/
Allocations through FY 1996	1,974,000
Allocation Requested for FY 1997	100,000
Programmed Balance to Complete after FY 1997	5,453,000
Unprogrammed Balance to Complete after FY 1997	$13,473,000

PHYSICAL DATA

Length: 59 miles of uncontrolled river.
Area: Approximately 19,600 acres within the designated corridor.

Pct. of Est. Fed. Cost

9

1/ Reflects $2,000 reduction for savings and slippage.

JUSTIFICATION: Designation as a Recreational River will preserve outstanding and important values of the area, such as endangered species. Presently, several federally listed (endangered or threatened) species regularly utilize the area, such as the least tern, pallid sturgeon, bald eagle, and the piping plover. Several species considered candidates for the federal listing also utilize the area, such as the paddlefish, sturgeon chub, and sicklefin chub. In addition, the Recreational River designation has the potential to provide additional opportunities for recreation and river access, as long as such access does not conflict with the values of the area such as endangered species use. Continuation of erosion control in the Recreational River reach is provided for by the designation, to the extent it is supported by local interests, and is compatible with recreational river values. The project reach is one of the few remaining reaches of the Missouri River that is essentially free of man-made structures, and it still offers an example of the dynamics of a free-flowing river in a relatively natural state.

420

FISCAL YEAR 1997: The total program is as follows:

General Design Memorandum Report	$ 50,000
Continue Pallid Sturgeon Study	25,000
Continue Management Plan Development	5,000
Project Management	20,000
Total	$ 100,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursement	Annual Operation, Maintenance, and Replacement Costs
Myron Grove River Access		
Pay one-half of the separable costs of recreation facilities and bear all costs of operation, maintenance, and replacement of recreation facilities.	$ 33,000	$ 13,000
Total Non-Federal Costs	$ 33,000	$ 13,000
Yankton Riverside Park		
Pay one-half of the separable costs of recreation facilities and bear all costs of operation, maintenance, and replacement of recreation facilities.	$ 607,000	$ 77,000
Total Non-Federal Costs	$ 607,000	$ 77,000
General Work		
Pay 25 percent of the first costs of fish and wildlife enhancement, and of the costs of operation, maintenance, and replacement of fish and wildlife facilities.	2/	2/

2/ Costs to be developed as planning on project proceeds.

NON-FEDERAL COSTS (continued)

Requirements of Local Cooperation (continued)	Payments During Construction and Reimbursement	Annual Operation, Maintenance, and Replacement Costs
Pay 100 percent of the costs allocated to prevention of erosion to private roads.	2/	2/
Pay the appropriate percent of the cost for prevention of erosion based on purpose for the acquisition of interest in the lands.	2/	2/
Total Non-Federal Costs	2/	2/

2/ Costs to be developed as planning on project proceeds.

STATUS OF LOCAL COOPERATION: In general, all agencies and local citizens and groups are in favor of the project. However, recent efforts to acquire sponsors have been unsuccessful. Local interests will be contacted as specific requirements are developed. Potential sponsors are the South Dakota Game, Fish and Parks Department; Union, Clay, and Yankton Counties in South Dakota; the Lewis and Clark Natural Resources District; and Cedar and Dixon Counties in Nebraska. An agreement pursuant to Section 215 of the Flood Control Act of 1968 was signed with the city of Yankton in 1989 for the construction of Riverside Park in Yankton. Construction was completed 1 June 1991. A cost sharing contract with the State of South Dakota for the Myron Grove access site was signed on 26 June 1986, and construction was completed in June 1987.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $21,000,000 is unchanged from the latest estimate presented to Congress (Fiscal Year 1996) and is limited to that amount by the project authorization. The estimate includes the following items:

Item	Amount
Price Escalation on Real Estate	$ +108
Price Escalation on Construction Features	+481
Estimating Adjustments	- 589
Total	$ 0

Division: Missouri River

District: Omaha
18 March 1996

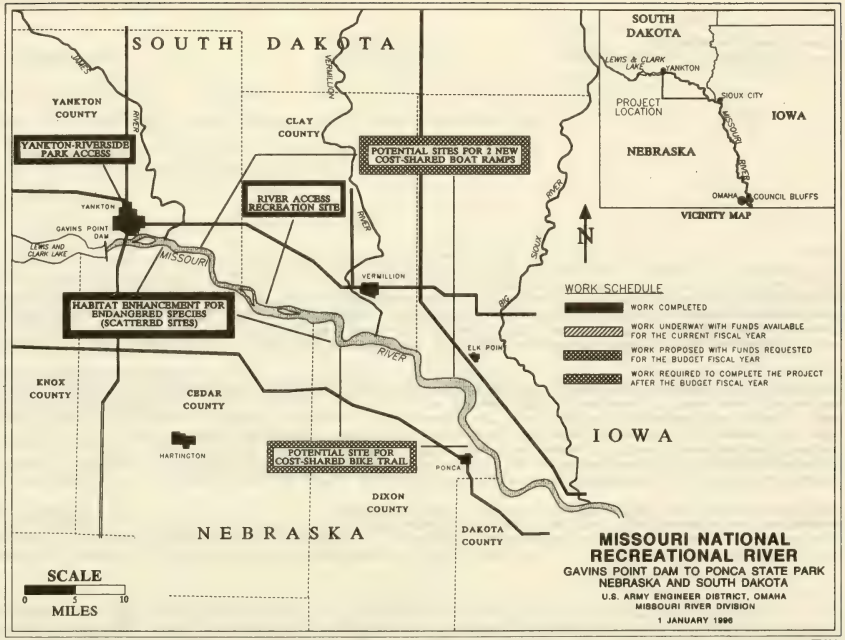
Missouri National Recreational River,
Nebraska and South Dakota

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (EIS) was filed with the Environmental Protection Agency on 12 August 1980. A second EIS is being prepared by the National Park Service in conjunction with their General Management Plan (GMP) and is due out in 1996. The Corps is on the planning team for both the GMP and EIS.

OTHER INFORMATION: Funds to initiate planning were appropriated in Fiscal Year 1980. A cooperative agreement between the U.S. Department of the Interior and the U.S. Department of the Army for implementation of this project was signed on 1 February 1980. Funds to initiate construction were appropriated in Fiscal Year 1986 with Federal cost limited to $21,000,000 by law.

Least tern and Piping plover studies: Tern and plover support began in 1989 with a demonstration project on clearing selected islands of vegetation in order to provide unvegetated nesting habitat for the birds (Phase 1). Since 1989, several vegetation removal methods have been tried, as well as methods to "push up" island areas to higher elevations to alleviate potential nest flooding by dam releases. Successful methods for habitat creation were completed in September 1995, with over 100 acres of habitat area being created by devegetation or "pushing up" from elevations previously not usable. Due to the public use in the Recreational River, it is also appropriate to increase public awareness of these rare species, as has been done by the design and purchase of informational signs and posters for use at boat ramp and public use areas such as Riverside Park and Mulberry Bend.

Pallid sturgeon: In FY 97, preservation efforts will continue for the pallid sturgeon, another endangered species in the Recreational River reach. The purpose is to utilize information gained by earlier studies to construct one or several projects within the Missouri River. The effort would include necessary pre-construction work such as reconnaissance and/or feasibility studies, environmental compliance, land acquisition/easements, etc. This will be a multi-year effort similar to that done for terns and plovers.


SOUTH DAKOTA
YANKTON COUNTY
YANKTON-RIVERSIDE PARK ACCESS
YANKTON
GAVINS POINT DAM
LEWIS AND CLARK LAKE
MISSOURI
JAMES
RIVER
CLAY COUNTY
RIVER ACCESS RECREATION SITE
POTENTIAL SITES FOR 2 NEW COST-SHARED BOAT RAMPS
VERMILLION
HABITAT ENHANCEMENT FOR ENDANGERED SPECIES (SCATTERED SITES)
ELK POINT
RIVER
KNOX COUNTY
CEDAR COUNTY
HARTINGTON
POTENTIAL SITE FOR COST-SHARED BIKE TRAIL
PONCA
DIXON COUNTY
NEBRASKA
DAKOTA COUNTY
IOWA
SCALE
0 5 10
MILES
SOUTH DAKOTA
LEWIS & CLARK LAKE
YANKTON
SIOUX CITY
PROJECT LOCATION
IOWA
NEBRASKA
MISSOURI RIVER
OMAHA
COUNCIL BLUFFS
VICINITY MAP
N
WORK SCHEDULE
WORK COMPLETED
WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR
WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR
MISSOURI NATIONAL RECREATIONAL RIVER
GAVINS POINT DAM TO PONCA STATE PARK
NEBRASKA AND SOUTH DAKOTA
U.S. ARMY ENGINEER DISTRICT, OMAHA
MISSOURI RIVER DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General (Navigation)

PROJECT: Missouri River Fish and Wildlife Mitigation, Iowa, Nebraska, Kansas, and Missouri (Continuing)

LOCATION: All mitigation will occur in the area of impact generally adjacent to the Missouri River in the states of Iowa, Nebraska, Kansas, and Missouri.

DESCRIPTION: The project will mitigate the losses to fish and wildlife resulting from the construction and operation of the Missouri River Bank Stabilization and Navigation Project. Construction of this project was completed in 1980, and it is now being operated and maintained. The mitigation will develop 16,900 acres of public lands (state or other Government-owned); and it will restore and preserve 1,900 acres of non-public aquatic lands, 1,300 acres of public aquatic lands, and 28,000 acres of non-public timber-brush habitat. An estimated 29,900 acres of mostly undeveloped non-public land will be acquired to implement the project.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable.

TOTAL BENEFIT-COST RATIO: Not applicable.

INITIAL BENEFIT-COST RATIO: Not applicable.

BASIS OF BENEFIT-COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	$75,700,000		Entire Project	29	Being Determined
Estimated Non-Federal Other Costs	0				
Total Estimated Project Cost	$75,700,000				
Allocations to 30 September 1995	$23,760,000				
Conference Allowance for FY 1996	5,700,000				
Allocation for FY 1996	5,327,000 1/				
Allocations through FY 1996	29,087,000	38			

1/ Reflects $473,000 reduction assigned as savings and slippage, and $100,000 reprogrammed to the project.

SUMMARIZED FINANCIAL DATA (Continued)		ACCUM PCT OF EST FED COST
Allocation Requested for FY 1997	$1,600,000	41
Programmed Balance to Complete after FY 1997	45,013,000	
Unprogrammed Balance to Complete after FY 1997	0	

PHYSICAL DATA (All Federal)	
Aquatic Habitat Restoration/ Preservation	3,200 acres
Acquisition and Development of Terrestrial Habitat Associated with aquatic areas	8,000 acres
Acquisition and Development of Timber tracts	20,000 acres
Development of Timber-Cropland Habitat on Public Lands	16,900 acres
Total	48,100 acres

JUSTIFICATION: The project will preserve and/or restore riverine aquatic and bottom land`terrestrial habitat in the Missouri River Valley where similar habitat is already depleted by the construction and operation of the Bank Stabilization and Navigation Project. Only those areas having the most potential will be included in the project, and lands needed for implementation will be acquired from willing sellers to the extent possible. The project will mitigate about 3 percent of aquatic losses and about 7 percent of terrestrial losses which have resulted from the bank stabilization and navigation project.

FISCAL YEAR 1997: The requested amount of $1,600,000 will be applied as follows:

Continue land acquisition	$225,000
Complete construction of Weldon Spring, Missouri site	800,000
Planning, Engineering, and Design	500,000
Construction Management	50,000
Operation and Maintenance during construction	25,000
Total	$1,600,000

NON-FEDERAL COSTS: Not applicable

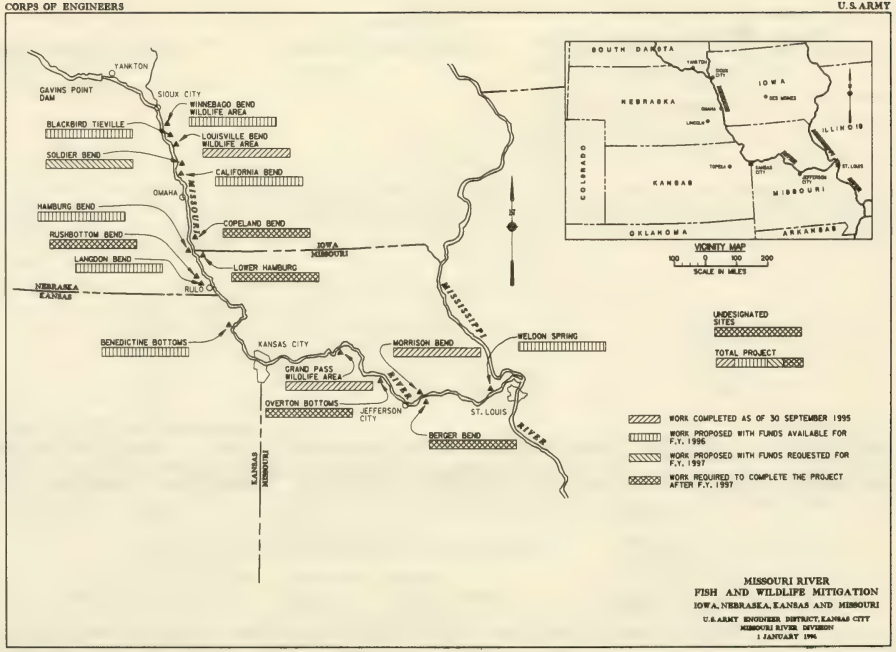
STATUS OF LOCAL COOPERATION: The authorizing act provides that the entire cost of this project, including all lands, easements, right-of-way, and relocations, and all operation and maintenance costs be borne by the Federal Government with no costs to either local or state governments. Therefore, there is no non-Federal sponsor for the project. The States of Iowa, Nebraska, Kansas, and Missouri are cooperatively providing support in the form of technical information, site priorities, public involvement, and related information. The states are also providing up to 18,200 acres of public land by easement at no cost for habitat development.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $75,700,000 is an increase of $5,800,000 from the latest estimate ($69,900,000) submitted to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$2,065,000
Design Changes	3,288,000
Post Contract Award and Other Estimating Adjustments	-88,000
Price Escalation on Real Estate	535,000
Total	$5,800,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Missouri River Mitigation Project Final Environmental Impact Statement was filed with the U.S. Environmental Protection Agency on 23 December 1982.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1990. Initial construction funds were appropriated in FY 1992.


YANKTON
GAVINS POINT DAM
SIOUX CITY
WINNEBAGO BEND WILDLIFE AREA
BLACKBIRD TIEVILLE
LOUISVILLE BEND WILDLIFE AREA
SOLDIER BEND
CALIFORNIA BEND
OMAHA
MISSOURI
HAMBURG BEND
COPELAND BEND
RUSHBOTTOM BEND
IOWA
MISSOURI
LANGDON BEND
LOWER HAMBURG
RULO
NEBRASKA
KANSAS
BENEDICTINE BOTTOMS
KANSAS CITY
MORRISON BEND
WELDON SPRING
GRAND PASS WILDLIFE AREA
MISSISSIPPI
RIVER
OVERTON BOTTOMS
JEFFERSON CITY
ST. LOUIS
BERGER BEND
KANSAS
MISSOURI
N
SOUTH DAKOTA
YANKTON
SIOUX CITY
NEBRASKA
OMAHA
LINCOLN
IOWA
DES MOINES
ILLINOIS
COLORADO
KANSAS
TOPEKA
KANSAS CITY
ST. LOUIS
JEFFERSON CITY
MISSOURI
OKLAHOMA
ARKANSAS
VICINITY MAP
100 0 100 200
SCALE IN MILES
UNDESIGNATED SITES
TOTAL PROJECT
WORK COMPLETED AS OF 30 SEPTEMBER 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 1997
MISSOURI RIVER
FISH AND WILDLIFE MITIGATION
IOWA, NEBRASKA, KANSAS AND MISSOURI
U.S. ARMY ENGINEER DISTRICT, KANSAS CITY
MISSOURI RIVER DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection Projects (Flood Control)

PROJECT: Missouri River Levee System, Iowa, Nebraska, Kansas, and Missouri (Active Units) (Continuing)

LOCATION: Along both sides of the Missouri River, Sioux City, Iowa, to the Mouth.

DESCRIPTION: A series of levee units and appurtenant works along both sides of the Missouri River from Sioux City, Iowa, to the Mouth, for protection of agricultural lands and small communities against floods.

AUTHORIZATION: 1941 and 1944 Flood Control Acts

REMAINING BENEFIT - REMAINING COST RATIO: 3.7 to 1 at 2 1/2 percent (Unit L385 only)

TOTAL BENEFIT-COST RATIO: Information is not available due to completion of individual units at various times since 1948.

INITIAL BENEFIT-COST RATIO: 1.5 to 1 at 2 1/2 percent (FY 1948)

BASIS OF BENEFIT-COST RATIO: Remaining benefit - remaining cost ratio is for Unit L385 only. Unit L385 benefit and cost data is at 1 October 1994 values and is based on a Supplemental Report to the General Design Memorandum dated 18 November 1994 and approved 5 December 1994. Economic data for Unit L142 are not available pending completion of the General Reevaluation Report (decision document).

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost			$126,723,000
Estimated Non-Federal Cost			45,543,000 1/
Cash Contributions		$29,613,000	
Required	$16,963,000		
Voluntary	12,650,000		
Other Costs		15,930,000	
Total Estimated Project Cost			$172,266,000

PHYSICAL DATA

LEVEES	
Average Height	14 feet
Length	428 miles
Area Protected	330,500 acres

1/ In addition, numerous flood control works have been constructed over many years by individuals and groups as land along the Missouri River has developed for agricultural use. The total cost of these improvements is unknown.

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM PCT OF ESTIM FED COST
Allocations to 30 September 1995	$93,548,000	
Conference Allowance for FY 1996	125,000	
Allocation for FY 1996	115,000 1/	
Allocations thru FY 1996	93,663,000	71
Allocation Requested for FY 1997	400,000	71
Programmed Balance to Complete after FY 1997	31,896,000	
Unprogrammed Balance to Complete after FY 1997	764,000	

1/ Reflects $10,000 reduction assigned as savings and slippage.

STATUS (1 January 1995)

	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
L624-627, R616, L611-614, R613, L601, L594, R580, L575, R573, R562, L550-561, R548, L536, R520, R512-513, R500, Kimsey-Holly Creek, L497, L488, R482, L476, R460-471, L455, L443-448, R440, L408, L400, R351, & L246	100	
Riverside-Quindaro Bend Levee District (L385)	0	Being Determined
Jefferson City (L142)	0	Being Determined
Entire Active Program	94	Being Determined

JUSTIFICATION: The active units of the authorized Missouri River Levee System, in conjunction with existing and authorized upstream reservoirs, will provide protection against destructive floods of a magnitude equal to those of past record for 429,500 acres of agricultural lands, highways, railroads, and utility lines, as well as for many small communities in the Missouri River flood plain from Omaha, Nebraska, to the mouth. From 1943 through September 1994, 83 floods have been experienced along the lower reaches of the Missouri River. The estimated average annual flood control benefits for all completed and active units between Sioux City and the mouth are not available due to completion of individual units at various times since 1948. The Missouri River flood of spring and summer 1993 produced damages within the Kansas City District estimated at over $1.3 billion. During FY 1993, Federal reservoirs and levees within Kansas City District boundaries prevented more than $14.9 billion in flood damages. One flood event occurred during 1994 producing an estimated $36.7 million in damage. An estimated $1.15 billion in damages were prevented by Federal projects during FY 1994. No estimates of damages incurred during the spring 1995 flood event are available. Damages prevented by Federal projects in Kansas City District during FY 1995 are tentatively estimated to exceed $4.27 billion. Annual benefits are all flood control.

FISCAL YEAR 1997: The requested amount of $400,000 will be applied as follows:

Item	Amount
Continue Engineering and Design for Unit L385	$200,000
Continue Planning, Engineering and Design for Unit L142	200,000
Total	$400,000

NON-FEDERAL COSTS: Total non-Federal cost is $45,543,000. Under cost sharing principles in effect at the time earlier units were under construction, non-Federal sponsors provided lands, easements, rights-of-way and relocations valued at $8,324,000, and contributed $400,000 for interior drainage work. The sponsors are also providing operation, maintenance, and replacements at a current annual cost of $720,000 (1 October 1995).

Remaining Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Unit L385 - In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:		
Provide lands, easements and rights-of-way	$2,939,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project	1,192,000	
Contingencies	746,000	
Pay 16 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent of Unit L385, and bear all costs of operation maintenance, and replacement of flood control facilities	8,976,000	$40,000 (1 October 1995)
Total Non-Federal Required Costs	$13,853,000	
In addition voluntary special cost sharing will be provided by the non-Federal interests to pay 100 percent of costs allocated to land development	12,650,000	
Total Non-Federal Costs During Construction (L385)	$26,503,000	

NON-FEDERAL COSTS: (Continued)

Remaining Requirements of Local Cooperation (Continued)	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
The non-Federal sponsor understands that payments are required during project construction.		
Unit L142 - In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:		
Provide lands, easements and rights-of-way	$324,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project	1,645,000	
Contingencies	360,000	
Pay 39 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 50 percent of Unit L142, and bear all costs of operation, maintenance, and replacement of flood control facilities	7,987,000	$15,000 (1 October 1995)
Total Non-Federal Costs During Construction (L142)	$10,316,000	
The non-Federal sponsor understands that payments are required during project construction.		

STATUS OF LOCAL COOPERATION: Sponsor of Unit L385 is the Riverside-Quindaro Bend Levee District. The sponsor agreed to assume additional voluntary cost sharing for costs associated with land development in the Quindaro Bend portion of the project to obtain Washington-level project support. Unit L385 was approved for a new construction start in FY 1994. A draft Project Cooperation Agreement was submitted for sponsor's review on 14 October 1992. The sponsor is currently evaluating its options for financing the project. Scheduled Project Cooperation Agreement execution date is December 1996.

Unit L142 - Jefferson City officials provided a letter of intent dated 14 May 1991 which indicated an understanding of the cost sharing involved and expressed a willingness to sponsor the project. Missouri former Governor Ashcroft, Senator Christopher Bond, and the Jefferson City Area Chamber of Commerce all provided letters in support of the project. Scheduled Project Cooperation Agreement execution date is January 2001.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $126,723,000 for the active program is a decrease of $1,694,000 from the latest estimate ($128,417,000) presented to Congress (FY 1996). This change includes the following:

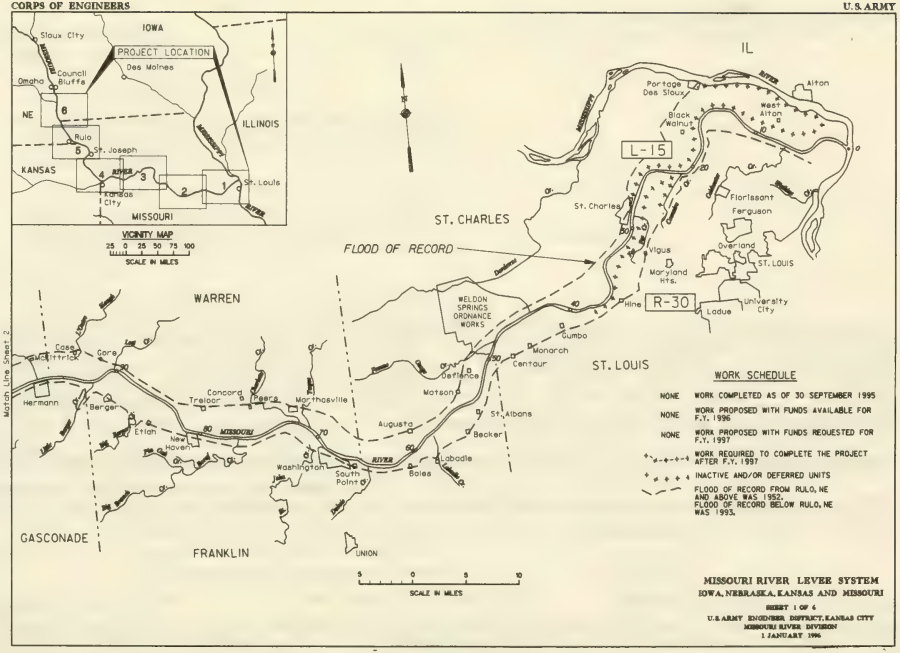
Item	Amount
Price Escalation on Construction Features	$2,366,000
Sundry	-4,060,000
Total	$-1,694,000

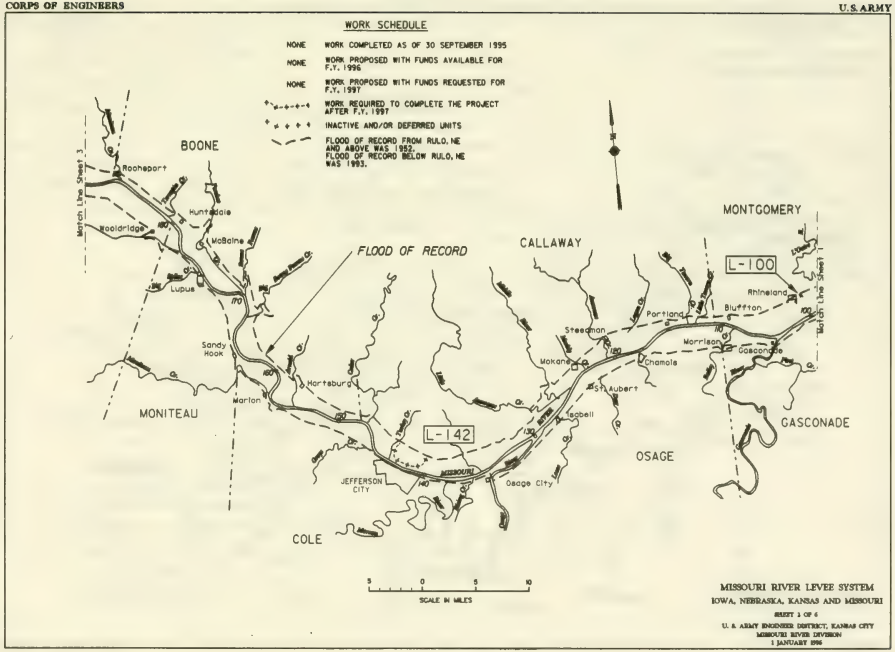
STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: The final Environmental Impact Statement for Unit L385 was filed with the Environmental Protection Agency on 18 November 1983.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1946 and to initiate construction in FY 1948.

Unit L142 was reclassified to the active category in May 1991 based on the preliminary results of an Initial Appraisal Report prepared in response to a request from the City of Jefferson City, Missouri. The Initial Appraisal Report, approved in August 1991, concluded that a flood control project could be feasible based on preliminary benefit and cost data and recommended proceeding with detailed planning, engineering and design. Funds to initiate preparation of a General Reevaluation Report were appropriated in FY 1993. The July 1993 flood event devastated the entire area being evaluated. A new economic survey, study of alternate levee alignments, and new cost estimates are required as a result of the flood damages. The General Reevaluation Report, scheduled for completion in October 1997, will document whether or not a feasible project can be constructed. Planning, engineering and design will be terminated if a feasible project is not identified.

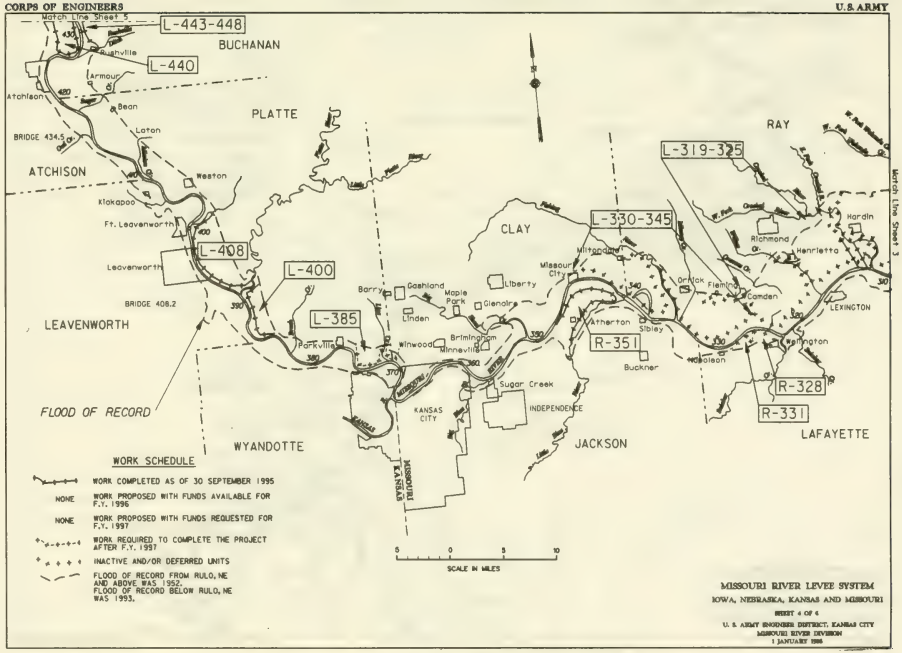
CORPS OF ENGINEERS U.S. ARMY



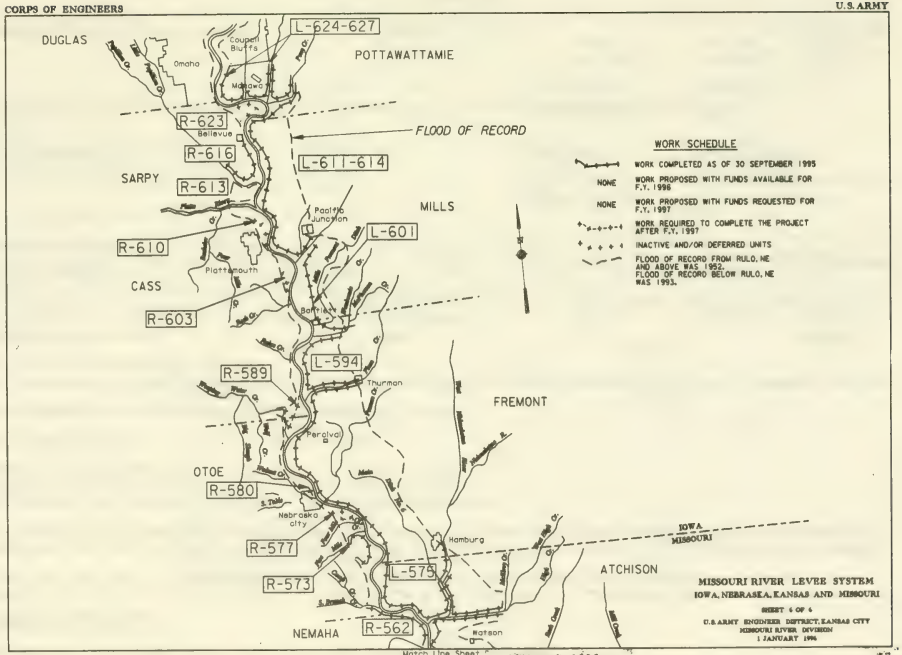

WORK SCHEDULE
NONE WORK COMPLETED AS OF 30 SEPTEMBER 1995
NONE WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 1996
NONE WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 1997
INACTIVE AND/OR DEFERRED UNITS
FLOOD OF RECORD FROM RULO, NE AND ABOVE WAS 1952. FLOOD OF RECORD BELOW RULO, NE WAS 1993.
BOONE
Rochepart
Hunt Addie
McBaine
Wooldridge
Lupus
Sandy Hook
Marion
Hartsburg
MONITEAU
FLOOD OF RECORD
CALLAWAY
L-142
JEFFERSON CITY
MISSOURI
Osage City
COLE
Mokane
Steedman
Portland
Chamois
St. Aubert
Gobell
OSAGE
MONTGOMERY
L-100
Rhineland
Bluffton
Morrison
Gascondade
GASCONADE
Match Line Sheet 3
Match Line Sheet 1
SCALE IN MILES
5 0 5 10
MISSOURI RIVER LEVEE SYSTEM
IOWA, NEBRASKA, KANSAS AND MISSOURI
SHEET 1 OF 6
U. S. ARMY ENGINEER DISTRICT, KANSAS CITY
MISSOURI RIVER DIVISION
1 JANUARY 1996

CHARITON
PALMER CREEK LEVEE
Brunswick
CARROLL
De Witt
Carrollton
Miami
Wakenda
New Frankfort
L-246
L-294
Norborne
Slater
Glillam
Lewis Mills
GLASGOW
HOWARD
SALINE
Hodge
WAVERLY
Grand Pass
Malta
Dover Sta.
Dover
Salline City
Lisbon
Petersburg
Arrow Rock
New Franklin
BOONVILLE
COOPER
LAFAYETTE
FLOOD OF RECORD
Motor Line Sheet 4
Motor Line Sheet 2
SCALE IN MILES
WORK SCHEDULE
WORK COMPLETED AS OF 30 SEPTEMBER 1995
NONE WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 1996
NONE WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 1997
INACTIVE AND/OR DEFERRED UNITS
FLOOD OF RECORD FROM RULO, NE AND ABOVE WAS 1952. FLOOD OF RECORD BELOW RULO, NE WAS 1993.
MISSOURI RIVER LEVEE SYSTEM
IOWA, NEBRASKA, KANSAS AND MISSOURI
SHEET 3 OF 6
U. S. ARMY ENGINEER DISTRICT, KANSAS CITY
MISSOURI RIVER DIVISION
1 JANUARY 1986

436


CORPS OF ENGINEERS
U.S. ARMY
Match Line Sheet 5
L-443-448
BUCHANAN
L-440
Rushville
Agency
Atchison
Bean
Loton
BRIDGE 434.5
PLATTE
ATCHISON
Weston
Kickapoo
Ft. Leavenworth
L-408
Leavenworth
BRIDGE 408.2
L-400
L-385
LEAVENWORTH
Parkville
FLOOD OF RECORD
WYANDOTTE
Barry
Gashland
Linden
Maple Park
Liberty
Glenaire
Brimington
Winwood
Winnevillo
KANSAS CITY
Sugar Creek
INDEPENDENCE
CLAY
Missouri City
Atherton
Sibley
R-351
Buckner
JACKSON
L-330-345
L-319-325
RAY
Richmond
Henrietta
Hardin
Orrick
Fleming
Camden
Napoleon
LEXINGTON
Wellington
R-328
R-331
LAFAYETTE
Match Line Sheet 3
WORK SCHEDULE
WORK COMPLETED AS OF 30 SEPTEMBER 1995
NONE
WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 1996
NONE
WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 1997
INACTIVE AND/OR DEFERRED UNITS
FLOOD OF RECORD FROM RULO, NE AND ABOVE WAS 1952.
FLOOD OF RECORD BELOW RULO, NE WAS 1993.
5 0 5 10
SCALE IN MILES
MISSOURI RIVER LEVEE SYSTEM
IOWA, NEBRASKA, KANSAS AND MISSOURI
SHEET 4 OF 6
U. S. ARMY ENGINEER DISTRICT, KANSAS CITY
MISSOURI RIVER DIVISION
1 JANUARY 1996

CORPS OF ENGINEERS
U.S. ARMY
Match Line Sheet 6
MISSOURI RIVER LEVEE SYSTEM
IOWA, NEBRASKA, KANSAS AND MISSOURI
SHEET 5 OF 6
U.S. ARMY ENGINEER DISTRICT, KANSAS CITY
MISSOURI RIVER DIVISION
1 JANUARY 1996
R-555
L-550-561
R-553
R-548
Brownville
Phelps City
ATCHISON
NEMAHA
Nemaha
L-536
CornING
R-540
R-531
L-504-512-519
Craig
RICHARDSON
R-520
Mound City
ANDREW
Bigelow
R-517
Forteacue
Rulo
Forest City
L-497
R-512-513
White Cloud
L-488
Nodaway
Amazonia
L-476
Industrial City
Forbes
BROWN
R-500
R-482
R-460-471
FLOOD OF RECORD
DONIPHAN
Wathena
Elwood
ST. JOSEPH
BUCHANAN
L-455
R-440
L-443-448
Match Line Sheet 4
WORK SCHEDULE
WORK COMPLETED AS OF 30 SEPTEMBER 1995
NONE
WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 1996
NONE
WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 1997
INACTIVE AND/OR DEFERRED UNITS
FLOOD OF RECORD FROM RULO, NE AND ABOVE WAS 1952. FLOOD OF RECORD BELOW RULO, NE WAS 1993.



18 March 1996

APPROPRIATION TITLE: Construction, General - Flood Control, Local Protection

PROJECT: Perry Creek, Iowa

LOCATION: The Perry Creek basin is located in Woodbury and Plymouth Counties in northwestern Iowa. The downstream 5 miles of the basin lie within the corporate limits of Sioux City, Iowa, and drain the central portion of the city.

DESCRIPTION: The project consists of 14,800 linear feet of grass and rock lined channel, 1,500 linear feet of new conduit, modification of 710 linear feet of existing conduit, a concrete stilling basin and a basin-wide flood warning system.

AUTHORIZATION: Water Resources Development Act of 1986, Section 401a.

REMAINING BENEFIT-REMAINING COST RATIO: 1.3 to 1 at 8 1/4 percent

TOTAL BENEFIT-COST RATIO: 1.7 to 1 at 8 1/4 percent

INITIAL BENEFIT-COST RATIO: 1.09 to 1 at 8 1/4 percent (FY 1994)

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in July 1992 at October 1990 price levels and were reevaluated in FY 1994.

SUMMARIZED FINANCIAL DATA:

			ACCUM. PCT. OF EST. FED COST	STATUS (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$ 41,644,000				
Estimated Non-Federal Cost		24,056,000		Entire Project	21	Being Determined
Cash Contribution	$ 19,000					
Other Costs	$ 24,037,000					
Total Estimated Project Cost		$ 65,700,000				
Allocations to 30 September 1995		$ 8,254,000				
Conference Allowance for FY 1996		168,000				
Allocation for FY 1996		1,638,000 1/				
Allocations through FY 1996		9,892,000	24			

PHYSICAL DATA

Relocations	Channel: 2.8 miles
Roads	Conduit: 2,210 lf
Utilities	Stilling Basin:
Structures	132 linear feet
Bridges	Concrete

1/ Reflects $14,000 reduction for savings and slippage and $1,484,000 reprogrammed to the project.

SUMMARIZED FINANCIAL DATA (continued):

		ACCUM. PCT. OF EST. FED COST	STATUS (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Allocation Requested for FY 1997	$ 5,363,000	37	Demolitions	Recreation Trail	
Programmed Balance to Complete after FY 1997	26,389,000		13 roadway 1 railroad	22,500 linear feet Asphalt	
Unprogrammed Balance to Complete after FY 1997		0	Replacements 7 roadway 1 railroad New: 2 roadway Not replaced: 4 roadway	Improvements 135 Residences 51 Commercial properties	

JUSTIFICATION: The project will provide urgently needed 100-year flood protection to the metropolitan and downtown areas of Sioux City, Iowa. The flood problem is severe under the present stage of urban development. Between 1892 and 1990, 24 floods have occurred on Perry Creek, with very little warning time. Ten of these floods were considered to be major. The floods of 18-19 May, 1990 and 22-23 May, 1990 produced damages estimated between $9,000,000 to $11,000,000. Average annual flood damages are estimated at $5,851,000, and the project will reduce the flood damage potential by approximately 90 percent. The estimated average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$ 5,219,000
Recreation	161,000
Conduit Roof Cost Savings	554,000
Advance Replacement of Bridges	81,000
Total	$ 6,015,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Review Property Appraisals	$50,000
Review Relocations	6,000
Initiate Railroad Bridge Relocation	300,000
Complete Phase I Conduit and Outlet Construction	1,872,000
Continue Demolition of Structures	600,000

FISCAL YEAR 1997 (continued):

Initiate Phase II Conduit and Outlet Construction	840,000
Complete Phase I Levee Floodway Construction	878,000
Planning, Engineering and Design	352,000
Construction Management	465,000
Total	$ 5,363,000

NON-FEDERAL COST: In accordance with the project authorization and the cost sharing policies contained in Section 103(a), (b), (c), (h) and (m) of the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirement of Local Cooperation	Payment during Construction	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide all lands, easements, right-of-ways, and dredged material disposal areas.	$13,150,000	
Relocate utilities, buildings, roads, bridges (except railroad bridges), and other facilities, where necessary for construction of the project.	10,770,000	
Bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities		$ 28,400
Pay one-half of the separable cost allocated to recreation, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement.	117,000	1,500
Pay 25 percent of the costs allocated to non-structural flood control and bear all costs of operation, maintenance, repair, rehabilitation, and replacement.	19,000	2,500
Total Non-Federal Costs	$24,056,000	$ 32,400

STATUS OF LOCAL COOPERATION: The Project Cooperation Agreement with the city of Sioux City, Iowa to sponsor the Perry Creek flood control project was executed on 12 March 1995.

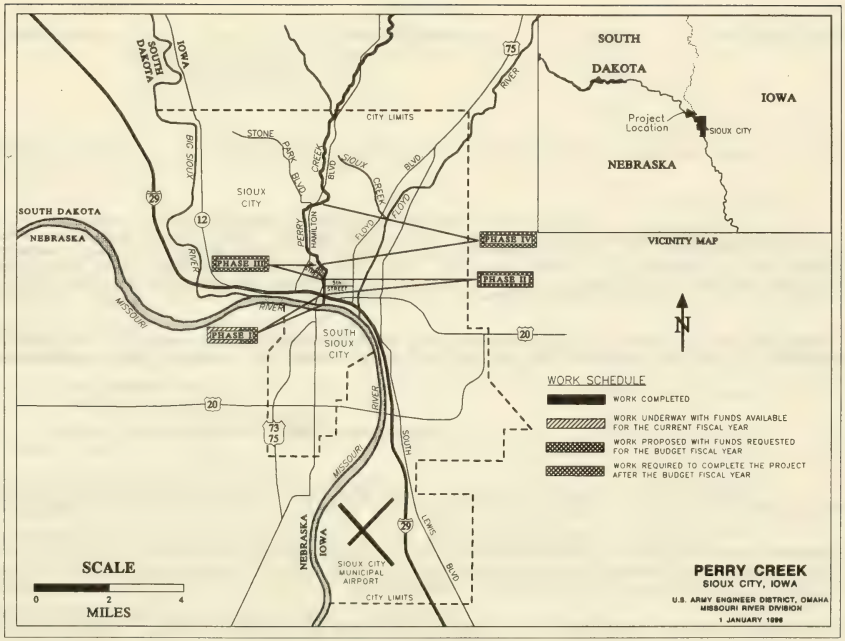
The current non-Federal cost estimate of $24,056,000, which includes a cash contribution of $19,000, is a decrease of $885,000 from the non-Federal cost estimate of $24,941,000 noted in the Project Cooperation Agreement, which included a cash contribution of $161,000. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $41,644,000 is an increase of $1,044,000 from the latest estimate ($40,600,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ + 517,000
Other Estimating Adjustments	+ 527,000
Total	$ 1,044,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: All comments on the draft EIS have been received and reviewed. No substantive issues were identified. All issues have been addressed in the final Supplemental 1 to the Final EIS filed with EPA on 17 July 1992.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1984 and funds to initiate construction were appropriated in FY 1995. The ability to pay provisions of WRDA of 1986 have been modified by rule changes published in the Federal Register on January 26, 1995. The new provisions allow elimination of the 5 percent cash contribution if both of the following are met 1) LERRD comprise 35 percent or more of the total project cost and 2) the per capita cost exceeds $300 per person. The city of Sioux City, Iowa meets both of the requirements to waive the 5 percent cash contribution. Fish and wildlife mitigation is estimated to cost $25,000.


SOUTH DAKOTA
IOWA
NEBRASKA
Project Location
SIOUX CITY
VICINITY MAP
CITY LIMITS
STONE PARK BLVD
PERRY CREEK BLVD
SIOUX CREEK FLOOD BLVD
BIG SIOUX RIVER
MISSOURI RIVER
SOUTH SIOUX CITY
SIOUX CITY
HAMILTON BLVD
PERRY STREET
PHASE I
PHASE IIA
PHASE IIB
PHASE IIC
PHASE IV
SOUTH DAKOTA
NEBRASKA
IOWA
SIOUX CITY MUNICIPAL AIRPORT
SOUTH LAKE BLVD
12
20
29
73
75
N
WORK SCHEDULE
WORK COMPLETED
WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR
WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR
SCALE
0 2 4
MILES
PERRY CREEK
SIOUX CITY, IOWA
U.S. ARMY ENGINEER DISTRICT, OMAHA
MISSOURI RIVER DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation

a. Channels and Harbors

The program request of $6,210,000 provides for maintenance of bank stabilization and channel alignment structures on the Missouri River between Sioux City, Iowa, and the Mouth. A stable bank is necessary to prevent erosion of valuable farm lands and provide a secure alignment for flood control levees along the banks, as well as provide a navigable channel.

State/Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL	FY 1997 TOTAL	Reason for Change and Major Maintenance Items
	(Operations) (Maintenance)	(Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10% +/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
Iowa			
Missouri River, Sioux City, Iowa to the Mouth, IA, NE, KS & MO	5,343,000 (2,016,000) (3,327,000)	6,210,000 (2,098,000) (4,112,000)	1. None. 2. Bank stabilization work.
SUBTOTAL - Channel and Harbors	5,343,000 (2,016,000) (3,327,000)	6,210,000 (2,098,000) (4,112,000)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation (Cont'd)**

b. Locks and Dams - None.

State/Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL	FY 1997 TOTAL	Reason for Change and Major Maintenance Items
	(Operations) (Maintenance)	(Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10% +/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
TOTAL - NAVIGATION	5,343,000 (2,016,000) (3,327,000)	6,210,000 (2,098,000) (4,112,000)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control**

a. Reservoirs

The program request of $27,811,000 includes funds for the operation and maintenance of 24 flood control projects, including essential repair work, and scheduling of flood control reservoir operations within the Division. Annual requirements are for operation and ordinary maintenance of project facilities; labor, supplies, materials and parts for day-by-day functioning of projects; periodic maintenance, repairs and replacements; cultural resource needs; and contract law enforcement. The requested amount also includes application of special recreation use fees for recreation areas.

State/Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL	FY 1997 TOTAL	Reason for Change and Major Maintenance Items
	(Operations) (Maintenance)	(Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10% +/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
Colorado			
Bear Creek Lake	412,000	423,000	
	(394,000)	(408,000)	1. None.
	(18,000)	(15,000)	2. None.
Chatfield Lake	865,000	793,000	
	(835,000)	(723,000)	1. Update master plan in FY96.
	(30,000)	(70,000)	2. None.

23-577 O - 96 - 15

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (Cont'd)

a. Reservoirs (Cont'd)

State/Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL	FY 1997 TOTAL	Reason for Change and Major Maintenance Items
	(Operations) (Maintenance)	(Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10% +/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
Colorado (Cont'd)			
Cherry Creek Lake	609,000	1,084,000	
	(540,000)	(927,000)	1. Prepare dam safety evaluation report in FY97.
	(69,000)	(157,000)	2. None.
Iowa			
Rathbun Lake	2,167,000	1,884,000	
	(1,493,000)	(1,405,000)	1. None.
	(674,000)	(479,000)	2. None.
Kansas			
Clinton Lake	1,545,000	1,473,000	
	(1,176,000)	(1,182,000)	1. None.
	(369,000)	(291,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control (Cont'd)**

a. Reservoirs (Cont'd)

State/Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL	FY 1997 TOTAL	Reason for Change and Major Maintenance Items
	(Operations) (Maintenance)	(Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10% +/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
Kansas (Cont'd)			
Hillsdale Lake	913,000	807,000	
	(768,000)	(668,000)	1. Lake capacity survey in FY96.
	(145,000)	(139,000)	2. None.
Kanopolis Lake	1,724,000	1,395,000	
	(1,156,000)	(1,114,000)	1. None.
	(568,000)	(281,000)	2. None.
Melvern Lake	1,551,000	1,580,000	
	(1,194,000)	(1,219,000)	1. None.
	(357,000)	(361,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (Cont'd)

a. Reservoirs (Cont'd)

State/Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL	FY 1997 TOTAL	Reason for Change and Major Maintenance Items
	(Operations) (Maintenance)	(Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10% +/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
Kansas (Cont'd)			
Milford Lake	1,759,000	1,759,000	
	(1,368,000)	(1,288,000)	1. None.
	(391,000)	(471,000)	2. None.
Perry Creek	1,581,000	1,798,000	
	(1,274,000)	(1,378,000)	1. None.
	(307,000)	(420,000)	2. None.
Pomona Lake	2,207,000	1,720,000	
	(1,240,000)	(1,406,000)	1. Periodic inspection and report in FY97.
	(967,000)	(314,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control (Cont'd)**

a. Reservoirs (Cont'd)

State/Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL	FY 1997 TOTAL	Reason for Change and Major Maintenance Items
	(Operations) (Maintenance)	(Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10% +/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
Kansas (Cont'd)			
Tuttle Creek Lake	2,609,000	2,031,000	
	(1,721,000)	(1,438,000)	1. Prepare dam safety evaluation report in FY96.
	(888,000)	(593,000)	2. None.
Wilson Lake	1,413,000	1,715,000	
	(1,036,000)	(1,064,000)	1. None.
	(377,000)	(651,000)	2. None.
Missouri			
Little Blue River Lakes	877,000	878,000	
	(720,000)	(673,000)	1. None.
	(157,000)	(205,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (Cont'd)

a. Reservoirs (Cont'd)

State/Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL	FY 1997 TOTAL	Reason for Change and Major Maintenance Items
	(Operations) (Maintenance)	(Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10% +/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
Missouri (Cont'd)			
Long Branch Lake	715,000	747,000	
	(627,000)	(659,000)	1. None.
	(88,000)	(88,000)	2. None.
Pomme de Terre Lake	1,757,000	1,845,000	
	(1,293,000)	(1,504,000)	1. Periodic inspection and report in FY97.
	(464,000)	(341,000)	2. None.
Smithville Lake	994,000	1,046,000	
	(813,000)	(901,000)	1. None.
	(181,000)	(145,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (Cont'd)

a. Reservoirs (Cont'd)

State/Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL	FY 1997 TOTAL	Reason for Change and Major Maintenance Items
	(Operations) (Maintenance)	(Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10% +/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
Nebraska (Cont'd)			
Nebraska			
Harlan County Lake	1,593,000	1,382,000	
	(1,206,000)	(1,096,000)	1. None.
	(387,000)	(286,000)	2. None.
Papillion Creek and Tributaries Lakes	682,000	736,000	
	(633,000)	(686,000)	1. Perform hydrographic surveys and prepare spillway evaluation report in FY97.
	(49,000)	(50,000)	2. None.
Salt Creek and Tributaries	752,000	928,000	
	(696,000)	(827,000)	1. Perform dam safety freeboard evaluation in FY97.
	(56,000)	(101,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (Cont'd)

a. Reservoirs (Cont'd)

State/Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL	FY 1997 TOTAL	Reason for Change and Major Maintenance Items
	(Operations) (Maintenance)	(Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10% +/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
North Dakota			
Bowman-Haley Lake	228,000	229,000	
	(213,000)	(225,000)	1. None.
	(15,000)	(4,000)	2. None.
Pipestem Lake	477,000	418,000	
	(465,000)	(410,000)	1. Prepare water control manuals and hydraulic risk assessment in FY96.
	(12,000)	(8,000)	2. None.
South Dakota			
Cold Brook Lake	192,000	201,000	
	(183,000)	(185,000)	1. None.
	(9,000)	(16,000)	2. None.
Cottonwood Springs Lake	178,000	186,000	
	(148,000)	(160,000)	1. None.
	(30,000)	(26,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control Cont'd

a. Reservoirs Cont'd

State/Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL	FY 1997 TOTAL	Reason for Change and Major Maintenance Items
	(Operations) (Maintenance)	(Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10% +/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
South Dakota (Cont'd)			
Scheduling of Flood Control	659,000	753,000	
Reservoir Operations	(649,000)	(747,000)	1.
	(10,000)	(6,000)	2. None.
SUBTOTAL - Reservoirs	28,459,000	27,811,000	
	(21,841,000)	(22,293,000)	
	(6,618,000)	(5,518,000)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (Cont'd)

b. Channel Improvements, Inspections and Miscellaneous Maintenance

The program request of $869,000 provides for the annual inspection of completed works within the Division during the budget year.

State/Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 1996 to FY 1997 (10% +/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
Iowa			
Missouri River -	59,000	64,000	
Kenslers Bend, NE	(10,000)	(9,000)	1. None.
to Sioux City, Iowa	(49,000)	(55,000)	2. None.
Inspection of Completed Works	584,000	805,000	
	(584,000)	(805,000)	1. Increase in number of inspections in FY97.
	(0)	(0)	2. None.
Projects Periodically Maintained	192,000	0	
	(0)	(0)	1. None.
	(192,000)	(0)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (Cont'd)

b. Channel Improvements, Inspections, and Miscellaneous Maintenance

State/Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL	FY 1997 TOTAL	Reason for Change and Major Maintenance Items
	(Operations) (Maintenance)	(Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10% +/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
SUBTOTAL - Channel Improvements, Inspections, and Miscellaneous Maintenance	835,000 (594,000) (241,000)	869,000 (814,000) (55,000)	
TOTAL FLOOD CONTROL	29,294,000 (22,435,000) (6,859,000)	28,680,000 (23,107,000) (5,573,000)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

3. Multiple Purpose Power Projects

The program request of $56,040,000 provides for the operation and maintenance of eight multi-purpose projects. Annual requirements are for the necessary operation and ordinary maintenance of project facilities; labor, supplies, materials and parts required for the day-by-day functioning of the projects; periodic maintenance, repairs and replacements; cultural resource needs; and contract law enforcement. The requested amount also includes application of special recreation use fees for recreation areas.

State/Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 1996 to FY 1997 (10% +/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
Missouri			
Harry S. Truman Dam and Reservoir	8,033,000	8,418,000	
	(4,498,000)	(4,330,000)	1. None.
	(3,535,000)	(4,088,000)	2. Repair turbine.
Stockton Lake	3,514,000	3,391,000	
	(2,063,000)	(2,189,000)	1. None.
	(1,451,000)	(1,202,000)	2. None.
Montana			
Fort Peck Dam and Lake	4,289,000	3,684,000	
	(2,903,000)	(2,595,000)	1. Conduct stilling basin study in FY96.
	(1,386,000)	(1,089,000)	2. Upgrade power plant control system in FY96/97.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

3. Multiple Purpose Power Projects (Cont'd)

State/Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 1996 to FY 1997 (10% +/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
Nebraska			
Gavins Point Dam	6,184,000	6,193,000	
Lewis and Clark	(3,309,000)	(3,683,000)	1. Prepare biological opinion for Terns and Plovers FY97.
Lake, NE & SD	(2,875,000)	(2,510,000)	2. Upgrade power plant control system in FY96/97.
Missouri River Basin			
Collaborative	150,000	500,000	
Water Resources Planning/	(150,000)	(500,000)	1. New activity in FY96.
Partnering	(0)	(0)	2. None.
Missouri River Master	2,787,000	1,000,000	
Water Control Manual,	(2,787,000)	1,000,000	1. Reduction due to funding constraints.
NE, IA, KS, MO, MT, ND	(0)	(0)	2. None.
North Dakota			
Garrison Dam,	8,312,000	8,445,000	
Lake Sakakawea	(4,848,000)	(5,194,000)	1. None.
	(3,464,000)	(3,251,000)	2. Upgrade power plant control system in FY96/97.
South Dakota			
Big Bend Dam -	5,628,000	6,457,000	
Lake Sharpe	(3,520,000)	(3,649,000)	1. None.
	(2,108,000)	(2,808,000)	2. Upgrade power plant control system in FY96/97.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

3. Multiple Purpose Power Projects (Cont'd)

State/Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL	FY 1997 TOTAL	Reason for Change and Major Maintenance Items
	(Operations) (Maintenance)	(Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10% +/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
South Dakota (Cont'd)			
Fort Randall Dam - Lake Francis Case	8,812,000 (4,724,000) (4,088,000)	8,041,000 (4,666,000) (3,375,000)	1. None. 2. Repair tainter gate and retrofit unit air circuit breakers and disconnects.
Oahe Dam - Lake Oahe	8,559,000 (4,936,000) (3,623,000)	9,911,000 (5,121,000) (4,790,000)	1. None. 2. Replace heat pumps FY97 and perform vegetative habitat development and maintenance in FY97.
TOTAL - MULTIPLE PURPOSE PROJECTS	56,268,000 (33,738,000) (22,530,000)	56,040,000 (32,927,000) (23,113,000)	
GRAND TOTAL - MISSOURI RIVER DIVISION	90,905,000 (58,189,000) (32,716,000)	90,930,000 (58,132,000) (32,798,000)	

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS

NEW ENGLAND DIVISION

COMPLETE STATEMENT

OF

COLONEL EARLE C. RICHARDSON

COMMANDER, NEW ENGLAND DIVISION

BEFORE THE

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

COMMITTEE ON APPROPRIATIONS

UNITED STATES HOUSE OF REPRESENTATIVES

ON THE

FISCAL YEAR 1997 CIVIL WORKS BUDGET

MARCH 21, 1996

STATUS REPORT ON CIVIL WORKS ACTIVITIES
IN THE NEW ENGLAND DIVISION
FISCAL YEAR 1997
COLONEL EARLE C. RICHARDSON, DIVISION ENGINEER

Mr. Chairman and distinguished members of the committee, I am Colonel Earle Richardson, the Division Engineer for New England. I am honored to appear before you to report on the Corps' civil works program in New England and to present our budget request for Fiscal Year 1997.

Accompanying me today is Mr. Bobby Byrne, Chief of Programs Management Division.

AREA OF RESPONSIBILITY

The New England Division's geographic area of civil works embraces 66,000 square miles, comprising the six-state New England region. The water resource needs of the region's 13 million people are as challenging and diverse as the geographic makeup of the region which transitions from the heavily urbanized southern area, where more than three-quarters of the population resides, to the rural northern tier. Our 348 projects completed to date and those underway are reflective of the broad spectrum of water resource challenges and opportunities such a region presents.

OUTLINE

I would like to highlight some of our recent accomplishments, present our FY 97 budget request and then brief you on some recent storms in our area.

RECENT ACCOMPLISHMENTS

In June we completed the Environmental Impact Statement for the Boston Harbor project. This action resolved the longstanding stalemate on what to do with disposal of dredged material from the harbor and will allow the Boston Harbor project to move forward. Also in June we completed the Major Rehabilitation Report for the Hodges Village Dam in Massachusetts. Noteworthy is that this was the first reliability analysis done for an earth filled structure. We completed the Central Connecticut Coastal Flooding reconnaissance report in June. Eleven areas in six communities were found to warrant further investigation. These areas will be pursued through the Continuing Authorities Program.

We have completed efforts on three Congressionally added activities as well. Feasibility efforts for the Cranston, Rhode Island, Wastewater Conveyance Study were completed last May. The recommended conveyance plan has an estimated cost of $11.6 million. Reconnaissance efforts for the Taunton River Basin, Massachusetts, Water Supply Study were completed in June 1995. Present and future water supply needs of 31 basin communities were evaluated and alternatives to meet those needs were identified. Plans and specifications for replacement of the Allendale Dam in North Providence, Rhode Island were completed in January and provided to the City. The estimated cost of replacement is $360,000.

Last year we expended $53.5 million which represented almost 90 percent of our total civil works program. This was an 11 percent increase over our FY 1994 execution. I anticipate continued improvement in our execution rate.

FISCAL YEAR 1997 PROGRAM REQUEST

The New England Division Fiscal Year 1997 budget request is $45.3 million This total request is $15 million more than our anticipated fiscal year 1996 allocation.

GENERAL INVESTIGATIONS

The General Investigations program request of $390,000 will provide for completion of one study and one preconstruction engineering and design of a project.

BLACKSTONE RIVER WATERSHED RESTORATION

The environmental quality of the Blackstone River in Massachusetts and Rhode Island has suffered from years of industrial development in the basin. It now represents the largest source of pollutants discharging into Narragansett Bay. A reconnaissance study of measures to restore fish and wildlife habitat in the Blackstone River Watershed will be initiated in June. Funds requested for FY 1997 will be used to complete the reconnaissance effort.

BOSTON HARBOR, MASSACHUSETTS

The $30.5 million Boston Harbor improvement project, which will be accomplished in conjunction with an additional $36 million worth of maintenance dredging, was authorized by the 1990 Water Resources Development Act, and provides for deepening of existing channels in the Mystic River and Reserved Channel to 40 feet and in the Chelsea River to 38 feet. The Massachusetts Port Authority is the project sponsor. Requested funds will be used to complete preconstruction engineering and design, scheduled for completion in September 1997.

CONSTRUCTION, GENERAL PROGRAM

The FY 1997 budget request includes $11,000,000 for our construction program. These funds and local sponsors' cash contributions of $2.2 million, will provide for completion of one project, continuation of another and initiation of a major rehabilitation effort.

TOWN BROOK, QUINCY AND BRAINTREE, MASSACHUSETTS

The $36 million Town Brook local protection project is being constructed under three separate contracts. The first for 1700 feet of channel work was completed in June 1994. A second contract for construction of a 4,060-foot floodwater diversion tunnel, 190 feet below the city, is well underway. The contractor has completed boring the tunnel and is now installing the precast concrete liner. We anticipate awarding the third contract for reconstruction of Old Quincy Dam in July. Funds requested in Fiscal Year 1997 will allow us to complete both contracts thus completing the Town Brook project.

ROUGHANS POINT, REVERE, MASSACHUSETTS

The Roughans Point section of Revere, Massachusetts has continually suffered from severe coastal flooding. Significant damages were incurred during nor'easter storms in February 1978, October 1991 and December 1992. Residents have had to be evacuated on many other occasions because of storms that threatened to inundate this area. The $12.2 million authorized project, whose key component is a 3,125-foot long armor stone revetment along the shore, will reduce wave runnup and overtopping of the existing seawall. Funds requested in FY 97

will allow us to continue with the construction contract, which is scheduled to be awarded this August.

HODGES VILLAGE DAM, MASSACHUSETTS

Hodges Village Dam, located along the French River in south-central Massachusetts, has been in operation since 1959. Since that time the project has prevented an estimated $31.9 million in downstream flood damages. Severe seepage problems occur when the project is regulated for flood control storage. These problems must be corrected to use safely the storage capacity of the project. The proposed plan calls for construction of a 2,000-foot concrete wall buried down the centerline of the earthfilled dam. Funds requested for Fiscal Year 1997 will be used for this purpose.

OPERATION AND MAINTENANCE, GENERAL

Our Operation and Maintenance budget request is $33.9 million. A total of $17.0 million requested for navigation will provide for dredging of seven projects, operation and maintenance of the Cape Cod Canal, and condition surveys of 35 harbors.

Our request of $16.9 million for flood control will be used for the operation and maintenance of 31 flood control reservoirs and two hurricane barriers. Additionally, 99 local protection projects throughout the New England area will be inspected.

JANUARY STORMS

Before concluding I would like to highlight our recent flood control successes. We experienced three significant rainstorms in January during a period of above normal temperatures and on top of a deep snowpack. This condition creates tremendous

potential for heavy flooding. However, as a result of our reservoir regulation activities we kept water levels well below flood stage and prevented an estimated $66 million in damages.

SUMMARY

Mr. Chairman, that concludes my status report. I would be pleased to answer any questions.

U. S. ARMY CORPS OF ENGINEERS
CIVIL WORKS PROGRAM

CONGRESSIONAL SUBMISSION
FISCAL YEAR 1997

NEW ENGLAND DIVISION

Budgetary information will not be released outside the Department of the Army until 18 March 1996.

Justification of Estimates for Civil Functions Activities
Department of the Army
Fiscal Year 1997

NEW ENGLAND DIVISION

Corps of Engineers

Table of Contents

	Page No.
Surveys:	2
Blackstone River Watershed Restoration, MA and RI	2
Preconstruction Engineering and Design:	4
Boston Harbor, MA	4
Construction, General:	6
Hodges Village Dam, MA	6
Roughans Point, Revere, MA	10
Town Brook, Quincy and Braintree, MA	15
Operation and Maintenance, General	20

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

SUMMARY, NEW ENGLAND DIVISION

	FY 1996 Allocation	FY 1997 Request	Increase/ Decrease
General Investigations	$	$	$
Surveys	122,000	300,000	178,000
Preconstruction Engineering and Design	137,000	90,000	(47,000)
Subtotal General Investigation	(259,000)	(390,000)	(131,000)
Construction, General			
Construction	1,463,000	5,800,000	4,337,000
Major Rehabilitation	0	5,200,000	5,200,000
Subtotal Construction, General	(1,463,000)	(11,000,000)	9,537,000
Operation and Maintenance, General			
Project Operations	19,222,000	22,238,000	3,016,000
Project Maintenance	9,300,000	11,644,000	2,344,000
Subtotal Operation and Maintenance	(28,522,000)	(33,882,000)	5,360,000
GRAND TOTAL, DIVISION PROGRAM	30,244,000	45,272,000	15,028,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
1. SURVEYS - NEW:	NONE				
2. SURVEYS - CONTINUING:					
a. Navigation Studies: None.					
b. Flood Damage Prevention Studies: None.					
c. Shoreline Protection Studies: None.					
d. Special Studies:					
Blackstone River Watershed Restoration, MA and RI	400,000	0	100,000	300,000	0

The study area includes the entire Blackstone River Watershed which originates in Worcester, Massachusetts and flows southward to the National Estuary of Narragansett Bay in Pawtucket, Rhode Island. The watershed is approximately 540 square miles and encompasses 30 cities and towns in south-central Massachusetts and northern Rhode Island. The Corps of Engineers has constructed one flood control reservoir and four local protection projects within this relatively small watershed to alleviate flooding in urban areas and protect major utilities and roadways. These projects consist of over 9 miles of channel improvements, dikes, floodwalls, tunnels and conduits which have decreased the value and diversity of fish habitat in the project areas and have altered the natural hydrologic regime of the watershed. The Blackstone River is also the largest source of pollutants such as suspended solids, PCB's, metals and organics discharging into Narragansett Bay. One source of this pollution is the resuspension of contaminated sediments which have collected behind existing impoundments along the river. The study will evaluate possible measures to correct the numerous problems of the Blackstone River Watershed and improve its overall resource value. Both the Commonwealth of Massachusetts and State of Rhode Island are currently cost sharing Planning Assistance studies to address specific problems and have expressed strong interest in this basin-wide study.

Fiscal year 1996 funds are being used to initiate a reconnaissance study at full Federal expense. The funds requested for Fiscal Year 1997 will be used to complete reconnaissance phase studies. Studies will evaluate measures

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

d. Special Studies: Blackstone River Watershed Restoration (Cont'd)

to improve fish and wildlife habitat by regulating flows; restoring fish spawning habitat, wetlands, and waterfowl nesting areas (e.g. black duck, mallards and wood ducks); constructing fish passage facilities for the target Anadromous fish species (American shad and river herring) and remediating the resuspension of contaminated sediments. These restorations are recognized as a high priority by several Federal and State agencies and would greatly improve the productivity of Narragansett Bay.

The reconnaissance report is scheduled to be completed in June 1997, which is 12 months after initiating the study.

e. Comprehensive Studies: None.

f. Project Review Studies: None.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
3. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - NEW:	NONE				
4. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - CONTINUING:					
a. Navigation:					
Massachusetts					
Boston Harbor	2,100,000	1,913,000	97,000	90,000	0

Boston Harbor is New England's largest port and serves as the principal distribution point for the commerce of Massachusetts, New Hampshire and Vermont. The inner harbor has been extensively developed for water transportation and is comprised of the Main Ship, Reserved, Chelsea River and Mystic River Channels. In 1993, waterborne commerce totaled 19.4 million tons, of which approximately 85 percent was liquid petroleum products. A feasibility report was completed on 13 May 1988. The recommended project, estimated to cost $30,500,000 with an estimated Federal cost of $20,400,000 and an estimated non-Federal cost of $10,100,000, involves deepening the Mystic River and Reserved Channels from 35 to 40 feet and the Chelsea River Channel from 35 to 38 feet; along with deepening to 40 feet the Inner Confluence Area which provides access to the Mystic and Chelsea River Channels; deepening a portion of the 35-foot Main Ship Channel to 40 feet as it enters the Inner Confluence Area; deepening a portion of the 35-foot Main Ship Channel to 40 feet opposite the entrance of the Reserved Channel; and widening and deepening to 40 feet the Reserved Channel at its confluence with the Main Ship Channel. The proposed project would increase the navigational efficiency and safety of harbor operations and reduce tidal delays for larger vessels. The average annual benefits amount to $3,594,000, all for navigation. Benefits are from the latest detailed evaluation and are at March 1995 price levels. The benefit-cost ratio is 1.4 to 1.

The project is authorized for construction by the Water Resources Development Act of 1990. Consistent with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must pay 25 percent of the costs allocated to deep draft navigation during construction, currently estimated at $6,800,000, reimburse an additional 10 percent of the costs allocated to deep draft navigation within a period of

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

a. Navigation: Boston Harbor (Cont'd)

30 years following completion of construction (partially offset by a credit allowed for the value of lands, easements, rights-of-way, relocations and dredged material disposal areas), currently estimated at $1,720,000, relocate utilities necessary for construction of the project, currently estimated at $1,000,000; and deepen berthing areas at the terminals of project beneficiaries, currently estimated at $2,300,000. The Massachusetts Port Authority is the local sponsor for the project.

Fiscal Year 1996 funds are being used to complete the Design Memorandum and coordinate the permit process with the sponsor. Funds requested for Fiscal Year 1997 will be used to initiate and complete plans and specifications and negotiate a draft Project Cooperation Agreement with the Massachusetts Port Authority. Preconstruction Engineering and Design activities are scheduled for completion in September 1997.

b. Flood Control: None.

c. Shoreline Protection: None.

d. Multiple Purpose Power: None.

APPROPRIATION TITLE: Construction, General - Major Rehabilitation - Flood Control

PROJECT: Hodges Village Dam, Massachusetts (New)

LOCATION: Hodges Village Dam and Reservoir is located in the town of Oxford, in south-central Massachusetts in the French River Basin. The dam site is about 10 miles south of Worcester and 16.5 miles upstream from the mouth of the French River at its confluence with the Quinebaug River.

DESCRIPTION: Hodges Village Dam, a 2,140-foot long and 54-foot high earthfill dam is a single purpose flood control project completed in 1959. The project includes four earthfill dikes totalling 2,600 feet. Storage capacity is 13,250 acre-feet. The project has prevented $31.9 million in damages to date. The plan for rehabilitation includes construction of a concrete panel cut-off wall along the 2,140-foot length of the dam and along the 1,205-foot length of Dike 1. Additional work is required at Dike 2 and along an adjacent natural ridge between Dike 2 and Dike 3. This work consists of a gravel and stone drainage blanket on landside slopes and a semi-impervious spoil fill blanket on the reservoir side slopes.

AUTHORIZATION: Flood Control Act of 1941.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio is 1.94 to 1 at 7 3/4 percent.

TOTAL BENEFIT-COST RATIO: The total benefit-cost ratio is 1.86 to 1 at 7 3/4 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are based on the Major Rehabilitation Report, Hodges Village Dam, Massachusetts approved in August 1995, at May 1995 price levels.

SUMMARIZED FINANCIAL DATA		ACCUMULATED PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	$17,100,000		Entire Project	0	Being Determined
Estimated Non-Federal Cost	0				
Total Estimated Project Cost	17,100,000 1/				
Allocations to 30 September 1995	$ 0				
Conference Allowance for FY 1996	0				
Allocations for FY 1996	0				
Allocations through FY 1996	0				

1/ Excludes $700,000 in design funded by Operations & Maintenance Appropriation.

SUMMARIZED FINANCIAL DATA (Continued)		ACCUMULATED PCT. OF EST. FED COST	PHYSICAL DATA
Allocation Requested for FY 1997	$ 5,200,000	30	Concrete Cut-off Wall
Programmed Balance to Complete After FY 1997	11,900,000	100	2,140 feet along dam 1,205 feet along Dike 1
Unprogrammed Balance to Complete After FY 1997	0		Filter Blanket 1,000-foot length, 100-foot width

JUSTIFICATION: Hodges Village Dam has experienced serious seepage problems with each one of the three significant pools stored since it was placed in operation in 1959. Temporary costly repairs to prevent recurrence at experienced levels have been required after each event. These three "high" pools represent only 43, 46 and 55 percent of the maximum design stage possible at this dam. The dam embankment is constructed of a homogeneous pervious sand and gravel fill with no impervious core or any seepage control features other than a partial downstream rockfill zone. The foundation materials consist of highly pervious stratified sands and gravel without any foundation cut-off features beneath the dam embankment. In fact, the only seepage control features at this site are from the three separate remedial repairs performed to date. Because of the past seepage history, highly pervious foundation materials, and the lack of any seepage control features in the dam and foundation, there is considerable concern that serious seepage problems such as piping, boils, and internal erosion conditions will develop under high pool conditions. Safety of the dam and dike embankments cannot be insured under the project's full design storage capacity. Reservoir pool levels at or near spillway crest elevation will create conditions for potential dam and dike failures due to the extensive uncontrolled seepage, erosion, and piping conditions that will develop. Catastrophic failure of the structure will cause a 20-foot wall of water to inundate the densely populated downstream communities. Average annual benefits for the major rehabilitation project are $2,567,200 at May 1995 prices.

FISCAL YEAR 1997: The requested amount will be applied as follows:

LERRD	$ 20,000
Initiate Construction	4,940,000
Engineering and Design	10,000
Construction Management	230,000
Total	$5,200,000

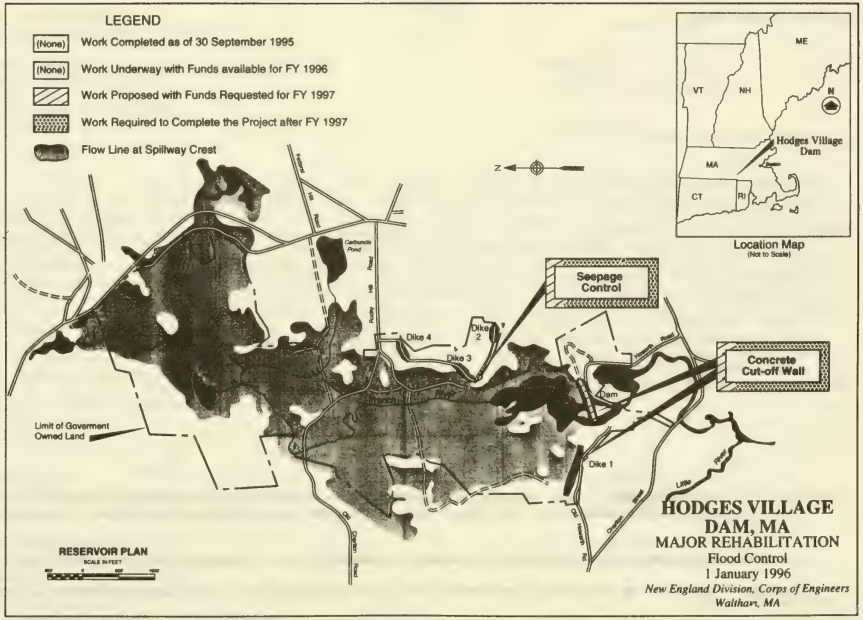
NON-FEDERAL COSTS: None Required.

STATUS OF LOCAL COOPERATION: None Required.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $17,100,000 is the initial estimate.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Assessment and Finding of No Significant Impact were completed in July 1995.

OTHER INFORMATION: Preconstruction Engineering and Design (PED) efforts are being conducted with Operation and Maintenance Appropriation funds and are scheduled to be completed in September 1996. Construction would be initiated in January 1997.


LEGEND
(None) Work Completed as of 30 September 1995
(None) Work Underway with Funds available for FY 1996
Work Proposed with Funds Requested for FY 1997
Work Required to Complete the Project after FY 1997
Flow Line at Spillway Crest
ME
VT
NH
NY
MA
CT
RI
Hodges Village Dam
Location Map
(Not to Scale)
N
Seepage Control
Concrete Cut-off Wall
Dike 1
Dike 2
Dike 3
Dike 4
Dam
Carbuncle Pond
Limit of Government Owned Land
RESERVOIR PLAN
SCALE IN FEET
HODGES VILLAGE DAM, MA
MAJOR REHABILITATION
Flood Control
1 January 1996
New England Division, Corps of Engineers
Waltham, MA

18 MAR 1996

APPROPRIATION TITLE: Construction, General - Local Protection Project (Flood Control)

PROJECT: Roughans Point, Revere, Massachusetts (Continuing)

LOCATION: Roughans Point is a densely populated residential neighborhood located about 5 miles north of Boston in the coastal community of Revere, Essex County, Massachusetts.

DESCRIPTION: The project provides for the construction of 3,125 feet of armor stone revetment along the shore of Roughans Point to dissipate storm waves and reduce overtopping. Project features also include the construction of a concrete cap on the existing seawall and earth berm to reduce backwater flooding as well as provisions to handle interior drainage. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio is 2.8 to 1 at 7 3/4 percent.

TOTAL BENEFIT-COST RATIO: The total benefit-cost ratio is 2.1 to 1 at 7 3/4 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are from the last detailed evaluation and are at January 1993 price levels. Benefit-cost ratios are based on the project functioning independently.

SUMMARIZED FINANCIAL DATA			ACCUMULATED PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$ 7,930,000		Stone Revetment	0	Being Determined
Estimated Non-Federal Cost		4,270,000				
Cash Contribution	$3,360,000			Entire Project	0	Being Determined
Other Costs	910,000					
Total Estimated Project Cost		$12,200,000				
Allocations to 30 September 1995		$ 1,069,000				
Conference Allowance for FY 1996		710,000				
Allocation for FY 1996		710,000				
Allocations through FY 1996		1,779,000	22			

PHYSICAL DATA

Stone Revetment
Length.....3,125 feet

23-577 O - 96 - 16

SUMMARIZED FINANCIAL DATA (Continued)		ACCUMULATED PCT. OF EST. FED COST
Allocation Requested for FY 1997	$ 2,663,000	56
Programmed Balance to Complete After FY 1997	3,488,000	100
Unprogrammed Balance to Complete After FY 1997	0	

JUSTIFICATION: Roughans Point contains over 300 structures, most of which are single family homes, and a population of about 1,400. Flooding due to storm tides and wave overtopping is a constant problem which causes damages annually. Severe floods have occurred in 1959, 1972, 1978, 1979, 1986, 1987, 1991 and 1992. The most severe of these floods was the 1978 storm which flooded nearly 300 structures and forced the evacuation of hundreds of residents. A recurrence of this storm would cause an estimated $13 million in damages. The proposed project would reduce flood losses from a recurrence of the 1978 storm by approximately 93 percent. The average annual benefits, all storm damage reduction, are estimated at $1,978,000 at January 1993 prices.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue construction	$2,258,000
Planning, Engineering and Design	80,000
Construction Management	325,000
Total	$2,663,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Pay 35 percent of the costs allocated to hurricane and storm damage reduction, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of hurricane and storm damage reduction facilities.	$4,270,000	$28,000
Total Non-Federal Costs	$4,270,000	$28,000

The non-Federal sponsor has agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The City of Revere in cooperation with the Commonwealth of Massachusetts Executive Office of Environmental Affairs (EOEA) are the non-Federal sponsors of the project and have provided continuous support for storm damage reduction measures at Roughans Point. The Revere City Council authorized bonding up to $4.2 million on 13 June 1994 to finance the non-Federal share of project costs. The State has agreed to reimburse the City for 50 percent of the non-Federal share over 4 years. A project cooperation agreement, consistent with the requirements of the Water Resources Development Act of 1986, is currently under review by the project sponsors and is scheduled to be executed in April 1996.

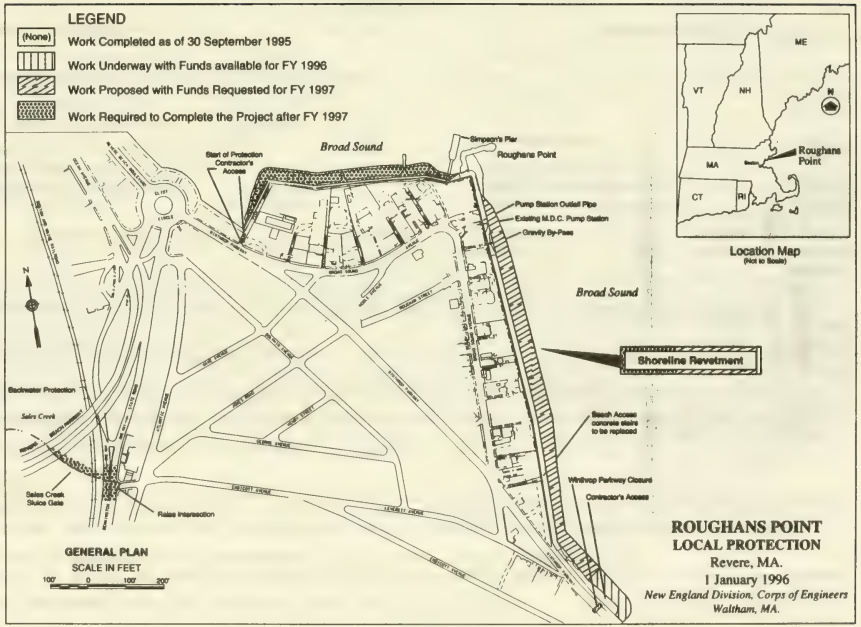
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $7,930,000 is a decrease of $1,040,000 from the latest estimate ($8,970,000) submitted to Congress (FY 1992). This change includes the following items:

Item	Amount
Price escalation on construction features	$ +365,000
Elimination of relocations	-30,000
Revised Planning, Engineering & Design estimate based on actual costs to date and assessment of remaining efforts	+120,000
Inclusion of mitigation measures	+175,000
Revised quantities of revetment work reflecting greater use of existing protection and reduced length	-1,515,000
Revised Construction Management costs based on lower construction costs	-155,000
TOTAL	$-1,040,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Revised Environmental Assessment and Finding of No Significant Impact were completed in July 1991. Mitigation was determined to be necessary to compensate for the loss of approximately two acres of intertidal habitat associated with project construction. Mitigation will involve the construction of an intertidal flat within the abandoned I-95 embankment area.

OTHER INFORMATION: Preconstruction Engineering and Design (PED) efforts were first funded in FY 1984. During the first two years, a hydrographic model was developed by WES which showed flood stages 1 to 3 feet higher than originally estimated. Based on these results, the authorized project was modified to include a 2-foot concrete cap on the existing seawall to reduce wave overtopping. Subsurface explorations, conducted during FY 1989 as part of a stability analysis of the existing seawall, revealed poor foundation conditions and the potential of settlement of the proposed project as well as stability and settlement problems with the existing seawall. During FY 1990, an independent A-E analysis of foundation conditions was conducted to assess the degree of settlement and stability problems, and to determine preventive measures which were incorporated into the final design.

PED efforts are scheduled to be completed in April 1996. The project sponsors have indicated they will complete land acquisition by May 1996. The PCA is scheduled to be signed in April 1996 and construction would then be initiated in August 1996.


LEGEND
(None) Work Completed as of 30 September 1995
Work Underway with Funds available for FY 1996
Work Proposed with Funds Requested for FY 1997
Work Required to Complete the Project after FY 1997
Broad Sound
Start of Protection Contractor's Access
Simpson's Pier
Roughans Point
Pump Station Outlet Pipe
Existing M.D.C. Pump Station
Gravity By-Pass
Broad Sound
Shoreline Revetment
Backwater Protection
Saint Croix
Seiles Creek Sluice Gate
Raise Intersection
Beach Access concrete stairs to be replaced
Winthrop Parkway Closure
Contractor's Access
GENERAL PLAN
SCALE IN FEET
100' 0 100' 200'
ROUGHANS POINT
LOCAL PROTECTION
Revere, MA.
1 January 1996
New England Division, Corps of Engineers
Waltham, MA.
ME
VT
NH
MA
CT
RI
Roughans Point
Location Map
(Not to Scale)

APPROPRIATION TITLE: Construction, General - Local Protection Project (Flood Control)

PROJECT: Town Brook, Quincy and Braintree, Massachusetts (Continuing)

LOCATION: The project is located in the City of Quincy and the Town of Braintree on the south side of Massachusetts Bay, along the eastern shore of Massachusetts, 7 miles south of Boston in Norfolk County.

DESCRIPTION: The project involves modification of Old Quincy Dam to provide dependable flood storage capacity, construction of 4,060 feet of 12-foot diameter relief tunnel and appurtenant intake and outlet structures, and construction of 1,700 feet of channel improvements along Town River just downstream of the tunnel outlet. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because project construction is substantially complete.

TOTAL BENEFIT-COST RATIO: The total benefit-cost ratio is 1.3 to 1 at 8 5/8 percent.

INITIAL BENEFIT-COST RATIO: The benefit-cost ratio for the fiscal year for which Congress appropriated initial construction funds (FY 1987) was 1.11 to 1.

BASIS OF BENEFIT-COST RATIO: Benefits are from the last detailed evaluation and are at October 1989 price levels. Benefit-cost ratios are based on the project functioning independently.

SUMMARIZED FINANCIAL DATA			ACCUMULATED PCT. OF EST. FED COST
Estimated Federal Cost		$27,000,000	
Estimated Non-Federal Cost		9,000,000 1/	
Cash Contribution	$2,070,000		
Other Costs	6,930,000		
Total Estimated Project Cost		$36,000,000	

STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Dam/Reservoir Modification	0	Sep 1997
Channel Improvements	100	Jun 1994
Relief Conduit	75	Oct 1996
Entire Project	75	Sep 1997

1/ Excludes $5,600,000 non-Federal cost for dam safety.

SUMMARIZED FINANCIAL DATA (Continued)		ACCUMULATED PCT. OF EST. FED COST
Allocations to 30 September 1995	$23,110,000	
Conference Allowance for FY 1996	990,000	
Allocation for FY 1996	753,000 1/	
Allocations through FY 1996	23,863,000	88
Allocation Requested for FY 1997	$ 3,137,000	100
Programmed Balance to Complete After FY 1997	0	
Unprogrammed Balance to Complete After FY 1997	0	

PHYSICAL DATA

Relief Conduit
- Type.....tunnel, concrete tunnel lining
- Size, inside diameter.....12 feet
- Length.....4,060 feet

Channel Improvement
- Length.....1,400 feet
- Southern Artery Culvert
  - Type...Triple rectangular box, precast concrete
  - Length.....300 feet
  - Size (each box)..... 7 feet x 16 feet

1/ Reflects $82,000 assigned savings and slippage and $155,000 reprogrammed from the project.

JUSTIFICATION: Town Brook flows through the heavily developed urban area of the City of Quincy, located on Massachusetts Bay just south of Boston. Town Brook does not have the capacity to carry floodflows from the highly developed watershed. Its small channel capacity has resulted in increasingly severe and frequent flooding in the downstream residential and commercial districts of Quincy. The Brook has been almost completely modified in its lower developed reaches by a system of culverts, underground conduits, and walled channels. Hundreds of residential and commercial properties are subject to flood damage. The two most recent major floods occurred in August 1955, the greatest of record, and March 1968. The 1955 flood was nearly a 100-year event, and a recurrence of that event would cause losses in excess of $11,000,000. Recurring losses for the 100-year event would be more than $18,000,000. A recurrence of the 1968 flood, approximately a 10-year event, would cause nearly $2,000,000 in damages. The proposed project would prevent damages from all floods up to and including a flood event having an average recurrence frequency of once in 100 years, as well as significantly reducing damages from larger, more infrequent floods. The average annual benefits, all flood control, are estimated at $3,589,800 at 1 October 1989 prices.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Complete construction of relief conduit (tunnel)	$1,600,000
Complete construction of dam modifications	1,337,000
Planning, Engineering and Design	50,000
Construction Management	150,000
Total	$3,137,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Pay all costs for approved compatible work associated with the project which will be credited toward the total non-Federal share of project costs.	$ 6,100,000	
Provide lands, easements and rights-of-way.	830,000	
Pay 5.8 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	2,070,000	$ 42,000
Total Non-Federal Costs	$ 9,000,000 1/	$ 42,000

The non-Federal sponsor has made all required contributions.

1/ Excludes $5,600,000 non-Federal cost for dam safety.

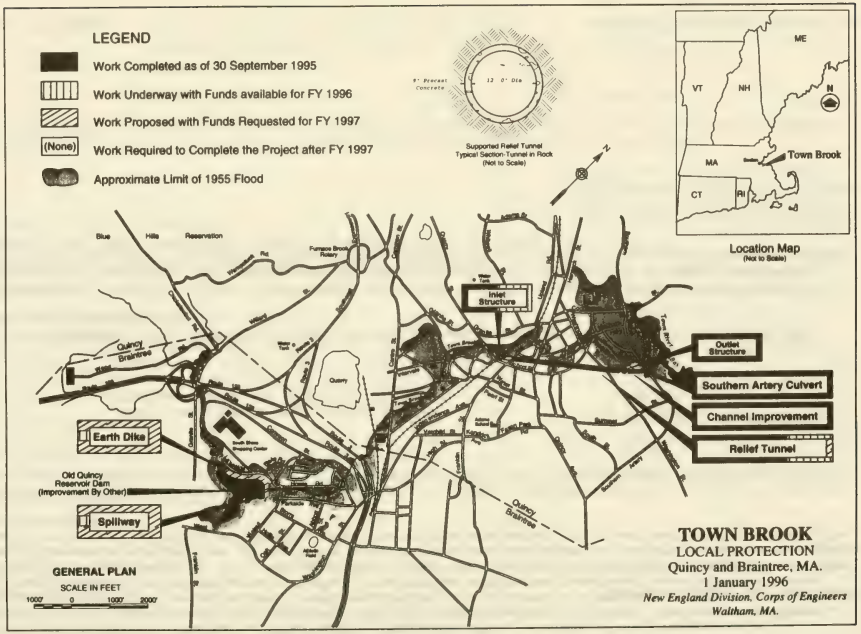
STATUS OF LOCAL COOPERATION: The Metropolitan District Commission (MDC), an agency of the Commonwealth of Massachusetts, is the local sponsor for the project. The LCA was executed on 7 July 1992. The current non-Federal cost estimate of $9,000,000, which includes a cash contribution of $2,070,000, is a decrease of $980,000 from the non-Federal cash estimate of $3,050,000 noted in the LCA. The MDC has contributed their total share of project costs. The MDC, by letter dated March 10, 1987, made application to ASA(CW) for credit of $7,400,000 in compatible work done by them, in accordance with Sections 104 and 401 of the Water Resources Development Act of 1986. The ASA(CW) approved on 20 May 1988 a credit of $6,100,000 for their work. The MDC has obtained all state and local permits necessary for project construction.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $27,000,000 is an increase of $1,800,000 from the latest estimate ($25,200,000) submitted to Congress (FY 1996). This change includes the following items:

Item	Amount
Price escalation on construction features	$ 150,000
Post award and other estimating adjustments	1,650,000
Total	$1,800,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment and Finding of No Significant Impact was completed on 29 September 1980.

OTHER INFORMATION: Funds to initiate Preconstruction Engineering and Design (PED) were appropriated in FY 1983 and funds to initiate construction were appropriated in FY 1987. A contract for construction of channel improvements along Town River was awarded 30 September 1992. A second contract for construction of the relief tunnel was awarded 15 September 1993. Programmed work is scheduled to be completed in September 1997.



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APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation

a. Channels and Harbors.

The program request of $12,840,000 provides for essential operation and maintenance work on the Cape Cod Canal and for essential maintenance work on seven harbor and channel projects named in the list which follows.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Changes in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
MAINE			
Scarborough River	968,000 (0) (968,000)	1,167,000 (0) (1,167,000)	1. None. 2. Maintenance dredging.
York Harbor	717,000 (0) (717,000)	714,000 (0) (714,000)	1. None. 2. Maintenance dredging.
MASSACHUSETTS			
Andrews River	(0) (0) (0)	165,000 (0) (165,000)	1. None. 2. None.
Cape Cod Canal	7,220,000 (5,048,000) (2,172,000)	8,191,000 (4,897,000) (3,294,000)	1. None. 2. Upgrade computer/radar interface for vessel tracking system; Repair Railroad Bridge.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont'd)

a. Channels and Harbors. (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Changes in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
MASSACHUSETTS (Cont'd)			
Cuttyhunk Harbor	(0)	101,000	
	(0)	(0)	1. None.
	(0)	(101,000)	2. None.
Duxbury Harbor	0	1,882,000	
	(0)	(0)	1. None.
	(0)	(1,882,000)	2. Maintenance dredging.
Green Harbor	364,000	262,000	
	(0)	(0)	1. None.
	(364,000)	(262,000)	2. None.
Hyannis Harbor	55,000	358,000	
	(0)	(0)	1. None.
	(55,000)	(358,000)	2. None.
Other Projects Maintained Periodically	2,247,000	0	
	(0)	(0)	
	(2,247,000)	(0)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont'd)

a. Channels and Harbors. (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	 FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Changes in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Total - Channels and Harbors	11,571,000 (5,048,000) (6,523,000)	12,840,000 (4,897,000) (7,943,000)	

b. Locks, Dams & Canals. None

TOTAL - NAVIGATION	11,571,000 (5,048,000) (6,523,000)	12,840,000 (4,897,000) (7,943,000)

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control

a. Reservoirs.

The program request of $15,818,000 provides for the operation and maintenance requirements of 31 flood control reservoirs. Requirements include: operation and ordinary maintenance of project facilities; labor, supplies, materials and parts required for day-to-day functioning; periodic maintenance, repairs and replacements; and contract law enforcement. The requested amount also includes application of Special Recreation Use Fees for recreation areas.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Changes in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
CONNECTICUT			
Black Rock Lake	242,000 (242,000) (0)	396,000 (289,000) (107,000)	1. Condition and environmental studies in FY 97. 2. None.
Colebrook River Lake	401,000 (322,000) (79,000)	419,000 (381,000) (38,000)	1. Increased water control/water quality management costs, periodic inspections in FY 97. 2. None.
Hancock Brook Lake	243,000 (243,000) (0)	469,000 (220,000) (249,000)	1. None. 2. None.
Hop Brook Lake	699,000 (699,000) (0)	868,000 (789,000) (79,000)	1. Condition and environmental studies in FY 97. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (Cont'd)

a. Reservoirs. (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	 FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Changes in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
CONNECTICUT (Cont'd)			
Mansfield Hollow Lake	363,000 (315,000) (48,000)	470,000 (398,000) (72,000)	 1. Condition and environmental studies in FY 97. 2. None.
Northfield Brook Lake	316,000 (316,000) (0)	415,000 (314,000) (101,000)	 1. None. 2. None.
Thomaston Dam	440,000 (436,000) (4,000)	477,000 (444,000) (33,000)	 1. None. 2. None.
West Thompson Lake	457,000 (450,000) (7,000)	426,000 (397,000) (29,000)	 1. Condition studies in FY 96. 2. None.
MASSACHUSETTS			
Barre Falls Dam	357,000 (346,000) (11,000)	324,000 (324,000) (0)	 1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (Cont'd)

a. Reservoirs. (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	 FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Changes in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
MASSACHUSETTS (Cont'd)			
Birch Hill Dam	322,000 (298,000) (24,000)	451,000 (378,000) (73,000)	 1. Condition studies in FY 97. 2. None.
Buffumville Lake	292,000 (292,000) (0)	348,000 (324,000) (24,000)	 1. Increased natural resource management in FY 97. 2. None.
Charles River Natural Valley Storage Area	148,000 (148,000) (0)	378,000 (218,000) (160,000)	 1. Condition and environmental studies in FY 97. 2. None.
Conant Brook Lake	211,000 (211,000) (0)	168,000 (166,000) (2,000)	 1. Condition studies in FY 96. 2. None.
East Brimfield Lake	372,000 (286,000) (86,000)	294,000 (272,000) (22,000)	 1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (Cont'd)

a. Reservoirs. (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	 FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Changes in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
MASSACHUSETTS (Cont'd)			
Hodges Village Dam	830,000 (310,000) (520,000)	339,000 (329,000) (10,000)	1. None. 2. None.
Knightville Dam	312,000 (294,000) (18,000)	371,000 (325,000) (46,000)	1. Condition studies in FY 97. 2. None.
Littleville Lake	324,000 (306,000) (18,000)	338,000 (315,000) (23,000)	1. None. 2. None.
Tully Lake	358,000 (320,000) (38,000)	376,000 (361,000) (15,000)	1. Condition studies in FY 97. 2. None.
West Hill Dam	465,000 (465,000) (0)	521,000 (433,000) (88,000)	1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (Cont'd)

a. Reservoirs. (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Changes in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
MASSACHUSETTS (Cont'd)			
Westville Lake	345,000 (345,000) (0)	387,000 (347,000) (40,000)	1. None. 2. None.
NEW HAMPSHIRE			
Blackwater Dam	374,000 (353,000) (21,000)	415,000 (405,000) (10,000)	1. Condition and environmental studies in FY 97. 2. None.
Edward MacDowell Lake	345,000 (317,000) (28,000)	468,000 (386,000) (82,000)	1. Condition and environmental studies in FY 97. 2. None.
Franklin Falls Dam	593,000 (340,000) (253,000)	731,000 (467,000) (264,000)	1. Condition and environmental studies in FY 97. 2. None.
Hopkinton-Everett Lakes	1,343,000 (708,000) (635,000)	1,887,000 (982,000) (905,000)	1. Condition studies; drought contingency plan in FY 97. 2. Remedial repairs to outlet walls.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (Cont'd)

a. Reservoirs. (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Changes in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
NEW HAMPSHIRE (Cont'd)			
Otter Brook Lake	366,000 (366,000) (0)	489,000 (450,000) (39,000)	1. Condition studies in FY 97. 2. None.
Surry Mountain Lake	381,000 (381,000) (0)	532,000 (456,000) (76,000)	1. Condition studies in FY 97. 2. None.
VERMONT			
Ball Mountain Lake	633,000 (533,000) (100,000)	854,000 (540,000) (314,000)	1. None. 2. None.
North Hartland Lake	399,000 (399,000) (0)	555,000 (417,000) (138,000)	1. None. 2. None.
North Springfield Lake	455,000 (455,000) (0)	668,000 (615,000) (53,000)	1. Condition and environmental studies in FY 97. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (Cont'd)

a. Reservoirs. (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	 FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Changes in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
VERMONT (Cont'd)			
Townshend Lake	701,000 (491,000) (210,000)	592,000 (551,000) (41,000)	 1. Condition studies in FY 97. 2. None.
Union Village Dam	368,000 (368,000) (0)	392,000 (370,000) (22,000)	 1. None. 2. None.
Total - Reservoirs	13,455,000 (11,355,000) (2,100,000)	15,818,000 (12,663,000) (3,155,000)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (Cont'd)

b. Channel Improvements, Inspections and Miscellaneous Maintenance.

The program request of $1,113,000 provides for the operation and maintenance requirements of 2 hurricane flood protection projects, the International St. Croix River Board of Control and the inspection of completed projects, turned over to locals.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	 FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Changes in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
CONNECTICUT			
Stamford Hurricane Barrier	908,000 (231,000) (677,000)	402,000 (262,000) (140,000)	 1. Revise O&M manual in FY 97. 2. None.
MASSACHUSETTS			
New Bedford, Fairhaven & Acushnet Hurricane Barrier	241,000 (241,000) (0)	595,000 (189,000) (406,000)	 1. Condition studies in FY 96. 2. None.
Inspection of Completed Works	100,000 (100,000) (0)	100,000 (100,000) (0)	 1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (Cont'd)

b. Channel Improvements, Inspections and Miscellaneous Maintenance. (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	 FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Changes in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Surveillance of Northern Boundary Waters			
International St. Croix River Board	7,000 (7,000) (0)	16,000 (16,000) (0)	 1. Restored FY 96 budget reduction. 2. None.
Total - Channel Improvements Inspections and Miscellaneous Maintenance	1,256,000 (579,000) (677,000)	1,113,000 (567,000) (546,000)	
TOTAL - FLOOD CONTROL	14,711,000 (11,934,000) (2,777,000)	16,931,000 (13,230,000) (3,701,000)	

3. Multiple Purpose Power Projects None.

500

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

4. Protection of Navigation: The program request of $4,111,000 provides for project condition surveys on some projects for which maintenance is not scheduled in the budget year and for disposal area monitoring.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for Changes in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Project Condition Surveys			
CONNECTICUT	871,000 (871,000) (0)	1,210,000 (1,210,000) (0)	1. Variation in survey requirements. 2. None.
MAINE	383,000 (383,000) (0)	1,131,000 (1,131,000) (0)	1. Variation in survey requirements. 2. None.
MASSACHUSETTS	680,000 (680,000) (0)	971,000 (971,000) (0)	1. Variation in survey requirements. 2. None.
NEW HAMPSHIRE	198,000 (198,000) (0)	355,000 (355,000) (0)	1. Variation in survey requirements. 2. None.
RHODE ISLAND	118,000 (118,000) (0)	444,000 (444,000) (0)	1. Variation in survey requirements. 2. None.
TOTAL - PROTECTION OF NAVIGATION	2,240,000 (2,240,000) (0)	4,111,000 (4,111,000) (0)	
GRAND TOTAL - NEW ENGLAND DIVISION	28,522,000 (19,222,000) (9,300,000)	33,882,000 (22,238,000) (11,644,000)	

NEW ODD PAGE

BRIGADIER GENERAL (P) MILTON HUNTER
COMMANDING NORTH ATLANTIC DIVISION
STATUS REPORT
TO
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES
ON
FISCAL YEAR 1997 BUDGET REQUEST

MARCH 21, 1996

INTRODUCTION

Mr. Chairman, distinguished members of the subcommittee, I am pleased to have this opportunity to report to you again on the status of the North Atlantic Division's Civil Works activities and the Fiscal Year 1997 budget request.

Accompanying me is Mr. Lawrence C. Petrosino, Chief of my Civil Works Division.

DESCRIPTION OF THE NORTH ATLANTIC DIVISION

GEOGRAPHIC SETTINGS

The North Atlantic Division covers much of the northeastern United States. It is a densely populated area that's both urban and rural. Our area includes all or portions of 13 states and the District of Columbia. The Division has water resource activities in the Hudson, Delaware, Susquehanna, Potomac, James, and other river basins. Our water resource activities also includes work in the Chesapeake and Delaware Bays and the Atlantic coast from Long Island, New York, to the Virginia-North Carolina border.

We cover 10,000 miles of shoreline and 2,300 miles of Federal navigation channels. Four of the nation's top ten ports are among the 100 we serve. New York Harbor is the largest container port on the east coast. Philadelphia is the world's largest inland freshwater port. Baltimore Harbor is a major entry point for goods heading to the Midwest, and Norfolk Harbor is the nation's number one coal port.

We own and operate 22 dams, nine major bridges, four locks and three canals, including the Chesapeake and Delaware, the country's largest sea level canal. We operate recreation facilities at some of our dam sites, including Blue Marsh, Pennsylvania, a popular recreation facility in the northeast.

DISTRICTS

The North Atlantic Division has district offices in New York City, Philadelphia, Baltimore, and Norfolk. They serve 41 million people and 88 congressional districts.

ACCOMPLISHMENTS

Our water resource activities are critical to the citizens we serve. In 1995, our flood control projects prevented more than $108 million in flood damages.

The Blizzard of January 1996 dumped as much as two to four feet of snow on the Northeastern United States. The storm was followed by a warming trend and rain that caused major flooding. Many rivers and streams within the North Atlantic Division, including the Hudson, Delaware, Susquehanna, Potomac, and James River Basins experienced major flooding. The North Atlantic Division's reservoirs filled from 10 to 72 percent of flood control storage capacity. In Baltimore District for example, the Tioga-Hammond, PA, and Cowanesque, PA, reservoirs reported reaching 53 and 72 percent, respectively, of their flood control storage capacity. Preliminary damages prevented amount to $1.7 billion for some of our river basins with $66.8 million in the James River Basin, VA, $1.37 billion in the Susquehanna River Basin, PA, NY, MD, $216.7 million in the Potomac River Basin, MD, WV, VA, and $35.2 million in the Lackawaxen River Basin, PA.

Our region's four major ports handled more than $100 billion worth of commerce.

The Division's beach erosion control projects provide annual benefits in excess of $60 million. We are nourishing several beaches along the Atlantic coast in New York, New Jersey, Delaware, Maryland, and Virginia.

OVERALL BUDGET REQUEST

We are requesting $263.2 million in Fiscal Year 1997. Our General Investigations program is $17.7 million, the Construction, General program is $107.6 million and Operation and Maintenance, General, our largest category, is $137.9 million. In addition, local sponsors will contribute nearly $43.4 million for this work.

GENERAL INVESTIGATIONS

HIGHLIGHTS OF FISCAL YEAR 1995 PROGRAM

Last Fiscal Year, our execution rate was 89 percent of the scheduled program for General Investigations studies and projects. It improved by 35 percent over the Fiscal Year 1994 program execution. The Fiscal Year 1995 General Investigations program included $21.2 million for 42 surveys and 11 design projects.

With the funds provided last Fiscal Year, we completed 12 surveys and one design project, continued 21 surveys and six design projects, and started nine surveys and four design projects.

HIGHLIGHTS OF THE FISCAL YEAR 1996 PROGRAM

Our Fiscal Year 1996 performance rate for General Investigations studies and projects is expected to improve over the Fiscal Year 1995 program by meeting our goal for the scheduled program. The General Investigations program includes $16.4 million for 35 surveys and 12 design projects.

These funds will complete 10 studies and two design projects, continue 20 studies and nine design projects, and start five studies and one design project.

BUDGET REQUEST FOR FISCAL YEAR 1997

For the General Investigations Program, the Budget Request includes $17.7 million for 30 studies and nine design projects. With these funds, we will complete seven reconnaissance studies, four feasibility studies, one model assessment, and five design projects. We will also continue 18 studies and one design project. In addition, we will start design of three projects. I'll briefly describe a few of these activities.

BALTIMORE HARBOR ANCHORAGES AND CHANNELS, MD AND VA

The Baltimore Harbor Anchorages and Channels, MD and VA, project addresses the need to improve two Federal anchorage areas; dredge a new branch channel to South Locust Point and turning basin at the head of the Fort McHenry Channel; widen and provide flared corners for East Dundalk, Seagirt, Connecting, and West Dundalk branch channels; and deauthorize a Federal Anchorage area. Our request of $191,000 will be used to complete the feasibility phase of this study, that is scheduled for completion in April 1997. In addition, we are requesting funds of $338,000 to continue into preconstruction engineering and design. A completion date is being determined for this preconstruction engineering and design effort.

CHESAPEAKE AND DELAWARE CANAL, BALTIMORE HARBOR CONNECTING CHANNELS, (DEEPENING) DE & MD

The $45,000 requested for the Chesapeake and Delaware Canal, Baltimore Harbor Connecting Channels, (Deepening) DE and MD, will be used to investigate the need for navigation improvements from Delaware Bay to Baltimore Harbor. These funds, along with the Maryland Port Administration's matching contributions, will complete the feasibility phase of the study. We are also requesting $1,210,000, to continue into preconstruction engineering and design. This project will consist of deepening the existing channel to 40 feet, enlarging a flare at Reedy Point, widening a bend at Sandy Point, and dredging an emergency anchorage at Howell Point. A completion date is being determined for this preconstruction engineering and design effort.

ARTHUR KILL CHANNEL, HOWLAND HOOK MARINE TERMINAL, NY & NJ

We are widening, deepening and realigning the Arthur Kill Channel, NY and NJ, in the area of the Howland Hook Marine Ocean Terminal to improve navigational safety and to accommodate larger modern vessels. The potential local sponsor for the project is the Port Authority of New York and New Jersey. The project is authorized for construction by the Water Resources Development Act of 1986. Our Fiscal Year 1997 request of $1,200,000 will continue preconstruction engineering and design. A completion date is being determined for this preconstruction engineering and design effort.

RARITAN RIVER BASIN, GREEN BROOK SUB-BASIN, NJ

In 1973, a major storm caused six deaths and more than $25,000,000 in damages in the Raritan River Basin, Green Brook Sub-Basin, NJ. This would be nearly $89,300,000 at October 1995 prices. A feasibility report completed in 1980 recommended building floodwalls and levees along Green Brook and its tributaries, and making other improvements, to protect the area. The Water Resources Development Act of 1986 authorized the project for construction. The project sponsor is the New Jersey Department of Environmental Protection. We are requesting $2,781,000 to complete the design, including the general reevaluation report and plans and specifications. Preconstruction engineering and design is scheduled for completion in August 1997.

ATLANTIC INTRACOASTAL WATERWAY BRIDGE AT GREAT BRIDGE, VA

The Atlantic Intracoastal Waterway Bridge at Great Bridge, VA, is seriously overloaded, carrying double its design capacity in vehicles each day. This is also affecting navigation because of restrictions on bridge openings. A feasibility report, completed in Fiscal Year 1994, recommended replacing the bridge with a bigger, modern one and the City of Chesapeake,VA, will be the local sponsor. Our request of $344,000 will complete preconstruction engineering and design, including plans and specifications. This effort is scheduled for completion in May 1997.

NANSEMOND RIVER BASIN, SUFFOLK, VA

Population growth and supporting development for the City of Suffolk, VA, and the Nansemond River Basin are projected to rise 25 percent by the year 2000 and 60 percent by the year 2030. There is a need to evaluate the impact of this growth and development on future hydrology and the ecosystem. There are also opportunities for environmental and navigational initiatives. Fiscal Year 1997 funds of $226,000 will be used to complete a reconnaissance study. The reconnaissance report is scheduled to be completed in March 1997.

CONSTRUCTION, GENERAL

HIGHLIGHTS OF FISCAL YEAR 1995 PROGRAM

In Fiscal Year 1995, our Construction, General execution rate was 81 percent of our scheduled program, an improvement of 24 percent over Fiscal Year 1994. The Fiscal Year 1995 Construction, General program included $79.4 million for 28 projects.

With these funds, we completed two projects, continued 18 projects, and started eight construction projects.

HIGHLIGHTS OF FISCAL YEAR 1996 PROGRAM

The performance rate for our Fiscal Year 1996 Construction, General program is expected to improve over the Fiscal Year 1995 program. We expect to meet our scheduled program goal for Construction, General. The Fiscal Year 1996 Construction, General program includes $72 million for 23 projects.

We are completing one project, continuing 20 projects, and starting two construction projects.

BUDGET REQUEST FOR FISCAL YEAR 1997

Turning to our Fiscal Year 1997 budget request for the Construction, General program, it includes $107.6 million to complete construction on two projects and continue work on 18 others. I will briefly discuss some construction activities.

SANDY HOOK TO BARNEGAT INLET, NJ

The Sandy Hook to Barnegat Inlet, NJ, project consists of improvements to two eroded sections of beach along the New Jersey shore. This has reduced the width of these beaches and exposed the shore to future damage. The State of New Jersey is the local sponsor and the project is authorized by the River and Harbor Act of 1958 as modified by the Water Resources Development Acts of 1986 and 1988. The $24,118,000 requested will continue construction of the Sea Bright to Ocean Township Section and start construction of the Asbury Park to Manasquan Section. The completion dates for the initial beachfill at the Sea Bright to Ocean Township Section and the Asbury Park to Manasquan Section are being determined. Completion dates for nourishment cycles are also being determined.

FIRE ISLAND INLET TO MONTAUK POINT, NY

The Fire Island Inlet to Montauk Point, NY, project provides beach erosion control and hurricane protection along five reaches of the Atlantic coast. We are studying the need to widen the beaches, raise the dunes and nourish the beach. The project area suffered major damage during the 11 December 1992 storm. The Westhampton area was especially hard hit. The project is authorized by the River and Harbor Act of 1962 as modified by the Water Resources Development Acts of 1974, 1986, and 1992. The New York State Department of Environmental Conservation is the local sponsor. Work will begin on the Westhampton Interim project in June 1996. We are requesting $13,900,000, to continue construction of the Westhampton Interim project, and continue reformulation efforts along the five reaches of the coast. The scheduled completion of the Westhampton Interim project is being determined. A completion date is also being determined for the entire project.

PETERSBURG, WV

Petersburg, WV, was devastated by floods from Tropical Storm Juan in 1985 causing $28,200,000 in damages. Our project consists of earth levees, floodwalls, channel improvement, highway bridge modifications, and environmental mitigation to protect the city. This project is authorized for construction by the Water Resources Development Act of 1990. Grant County, WV, is the local sponsor. Our request of $4,516,000, will complete the relocations, and continue levee construction. The project is scheduled for completion in August 1997.

WYOMING VALLEY (LEVEE RAISING), PA

The Wyoming Valley is vulnerable to flooding. A recurrence of Tropical Storm Agnes today would cause $2 billion in damages. Our Wyoming Valley (Levee Raising), PA, project will raise levees and floodwalls three to five feet, modify closure structures, relocate utilities, and build new floodwalls and levees to maintain the system's integrity. The Water Resources Development Act of 1986 authorized the project for construction and the project sponsor is Luzerne County, PA. The $14,063,000 requested will start construction of the Woodward pump station and the Kingston-Edwardsville levee; continue construction of the Exeter and Swoyersville-Forty Fort levees, and provide measures to reduce environmental impacts. A completion date is being determined for this project.

JAMES R. OLIN FLOOD CONTROL PROJECT, VA

The James R. Olin Flood Control Project, VA, will provide a system of levees and floodwalls along the left bank of the Maury River and channel modifications to protect the City of Buena Vista, VA, from flooding. The City suffered major flooding during storms in 1936, 1969, and 1985. The 1969 flood of record would cause more than $61,000,000 in damages today. The project was authorized by the Water Resources Development Act of 1990 and the City of Buena Vista, VA, is the project sponsor. The requested $6,800,000 will be used to continue construction. A completion date is being determined for the project.

MOLLY ANN'S BROOK, NJ

Our project at Molly Ann's Brook is located in Haledon, Prospect Park, and Paterson, NJ, about 12 miles from New York City. We are modifying the channel for 2.5 miles with trapezoidal and walled sections. We will also replace five bridges and remove one building. This project is authorized by the Water Resources Development Act of 1976 as modified by the Water Resources Development Act of 1986. We will continue construction with the Fiscal Year 1997 request of $8,150,000. The State of New Jersey Department of Environmental Protection is the local sponsor. A completion date is being determined for this project.

OPERATION AND MAINTENANCE, GENERAL

HIGHLIGHTS OF FISCAL YEAR 1995

In Fiscal Year 1995, our performance rate for the Operation and Maintenance, General program of $133.8 million was 97 percent.

Corps' project operation and maintenance is a vital activity in the northeast. The $133.8 million provided was used to operate and maintain 187 activities. Included in our program was $97.0 million for maintenance of 61 channels and harbors projects, $26.5 million for flood control project maintenance and reservoir operation on 32 projects, and inspection of 86 completed projects. We were also provided $10.3 million for protection of navigation on eight activities.

HIGHLIGHTS OF FISCAL YEAR 1996

For Fiscal Year 1996, we expect to place 99 percent of our $157.1 million Operation and Maintenance, General program. This program includes five congressional adds and one budgeted item was deleted.

The $157.1 million is being used to operate and maintain 191 activities. It includes $117.4 million for maintenance at 72 channels and harbors projects, $30.3 million for flood control project maintenance and reservoir operation on 33 projects, and inspection of 78 completed projects. We are also using $9.4 million for protection of navigation on eight activities.

BUDGET REQUEST FOR FISCAL YEAR 1997

The $137.9 million for the Fiscal Year 1997 budget request will be used to operate and maintain 191 activities. This includes $103.2 million for maintenance at 72 channels and harbors projects, $24.4 million for flood control project maintenance and reservoir operation on 33 projects, and inspection of 78 completed projects. We are also requesting $10.3 million for protection of navigation on eight activities. These funds will let us continue to maintain these high priority projects.

CONCLUSION

Mr. Chairman, we are your United States Army Corps of Engineers continuing to work to make a better natural and human environment for our densely populated region.

Our goal and vision is to provide responsive, customer focused, quality engineering services to be the "team of choice" for our nation's water resource needs.

Mr. Chairman, it is my understanding that you and Congressman Bevill will retire at the end of this year. On behalf of the North Atlantic Division and the Corps of Engineers, I would like to thank each of you for your many years of guidance and support on the Civil Works Programs of our nation and this region.

This concludes my status report. I will be pleased to answer any questions.

U. S. ARMY CORPS OF ENGINEERS
CIVIL WORKS PROGRAM

CONGRESSIONAL SUBMISSION
FISCAL YEAR 1997

NORTH ATLANTIC DIVISION

Budgetary information will not be released outside the Department of the Army until 18 March 1996.

23-577 O - 96 - 17

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

NORTH ATLANTIC DIVISION

Corps of Engineers

Table of Contents

	Page No
Surveys:	2
Addison, New York	51
Anacostia River and Tributaries, Maryland and D. C.	10
Anacostia River Federal Facilities Impact Assessment, Maryland and D. C.	43
Atlantic Coast of New York, New York	38
Baltimore Harbor Anchorages and Channels, Maryland and Virginia	4
Baltimore Metropolitan Water Resources, Maryland	12
Brigantine Inlet to Great Egg Harbor Inlet, New Jersey	29
Cheasapeake and Delaware Canal, Baltimore Harbor Connecting Channels (Deepening), Delaware	2
Cheaspeake Bay Shoreline, Poquoson, Virginia	42
Cheasapeake Bay Time Variable Model, Maryland, Virginia, Pennsylvania, and D. C.	44
Delaware Bay Coastline, Delaware and New Jersey	25
Delaware Coast from Cape Henlopen to Fenwick Island, Delaware	27
Hudson River Habitat Restoration, New York	8
Jamaica Bay, Marine Park and Plumb Beach, New York	39
Jennings Randolph Lake Reallocation, Maryland and West Virginia	49
Juniata River Basin, Pennsylvania	19
Lower Cape May Meadows-Cape May Point, New Jersey	31
Milton, Pennsylvania	20
Nansemond River Basin, Suffolk, Virginia	47
North Branch Potomac River Environmental Restoration, West Virginia, Maryland, PA	23
Ocean City and Vicinity Water Resources, Maryland	6
Pautuxent River Water Resources	14
Raritan Bay and Sandy Hook Bay, Cliffwood Beach, New Jersey	35
Raritan Bay and Sandy Hook Bay, New Jersey	33
Schuylkill River Basin, Schuylkill Haven, Pennsylvania	21
Smith Island Environmental Restoration and Protection, Maryland	45
South River, Raritan River Basin, New Jersey	15
Susquehanna River Basin Water Management, New York, Pennsylvania, and Maryland	17
Townsends Inlet to Cape May Inlet, New Jersey	36
Yonkers Shoreline, New York	41
Preconstruction Engineering and Design:	51
Arthur Kill Channel, Howland Hook Marine Terminal, New York and New Jersey	57
Atlantic Intracoastal Waterway Bridge at Great Bridge, Virginia	58
Baltimore Harbor Anchorages and Channels, Maryland and Virginia	55

	Page No
Preconstruction Engineering and Design: (cont'd)	
Chesapeake and Delaware Canal, Baltimore Harbor Connecting Channels (Deepening), DE & MD	52
Delaware River Main Channel Deepening, Delaware, New Jersey, and Pennsylvania	54
Jennings Randolph Lake Reallocation, Maryland and West Virginia	63
Long Beach Island, New York	60
Raritan River Basin, Green Brook Sub-Basin	65
Sandbridge, Virginia Beach, Virginia	62
Construction, General:	67
Cheasapeake Bay Oyster Recovery, Maryland	164
Cape May Inlet to Lower Township, New Jersey	90
Delaware Coast Protection, Delaware	85
East Rockaway Inlet to Rockaway Inlet and Jamaica Bay, New York	108
Fire Island to Montauk Point, New York	113
Great Egg Harbor Inlet and Peck Beach, New Jersey	96
James R. Olin Flood control Project, Virginia	148
Kill Van Kull & Newark Bay, New York and New Jersey	67
Lackawanna River, Olyphant, Pennsylvania	133
Lackawanna River, Scranton, Pennsylvania	138
Molly Ann's Brook, Halendon, Prospect Park and Paterson, New Jersey	123
Moorefield, West Virginia	154
New York Harbor, Collection and Removal of Drift, New Jersey and New York	72
Norfolk Harbor and Channels (Deepening), Virginia	78
Petersburg, West Virginia	159
Poplar Island, Maryland	168
Ramapo River at Oakland, New Jersey	128
Sandy Hook to Barnegat Inlet, New Jersey	102
Virginia Beach (Reimbursement), Virginia	118
Wyoming Valley, Pennsylvania (Levee Raising)	143
Operations and Maintenance:	172

Justification of Estimates for Civil Function Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

SUMMARY, NORTH ATLANTIC DIVISION

	FY 1996 Allocation 1/ $	FY 1997 Request $	Increase or Decrease $
General Investigations			
Surveys	8,805,000	10,675,000	1,870,000
Preconstruction Engineering and Design	7,627,000	7,091,000	-536,000
Subtotal General Investigations	(16,432,000)	(17,766,000)	(1,334,000)
Construction, General			
Construction	72,033,000	107,600,000	35,567,000
Major Rehabilitation	0	0	0
Dam Safety Assurance	0	0	0
Subtotal Construction, General	(72,033,000)	(107,600,000)	(35,567,000)
Operation and Maintenance, General			
Project Operations	37,984,900	38,223,000	238,100
Project Maintenance	119,142,700	99,705,000	-19,437,700
Subtotal Operations and Maintenance	(157,127,600)	(137,928,000)	(-19,199,600)
GRAND TOTAL, NORTH ATLANTIC DIVISION	245,592,600	263,294,000	17,701,400

1/ Energy and Water Development Appropriations Act, 1996, P.L. 104-46 (109 Stat. 402)

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
1. SURVEYS - NEW - None					
2. SURVEYS - CONTINUING:					
a. Navigation Studies:					
DELAWARE					
Chesapeake and Delaware Canal, Baltimore Harbor Connecting Channels (Deepening), DE & MD	2,615,000	2,528,000	42,000	45,000	0

The existing Federal navigation project for the Chesapeake and Delaware Canal provides for a channel 44 miles long, 35 feet deep and 450 feet wide from the Delaware River to deep water in the Chesapeake Bay off Pooles Island. The project includes Federal ownership of four bridges. The Baltimore Harbor connecting channels have a total length of 13 miles, and authorized depths of 35 feet and widths of 600 feet. These projects provide deep draft commercial channels for ships calling at Baltimore, Maryland, with a shortcut to and from Philadelphia, Pennsylvania, the northeast United States and Europe. The present canal dimensions were authorized in 1954 and the connecting channels were authorized in 1958, based on vessel characteristics and traffic levels which are now significantly exceeded. Almost 11,000 vessels transport 17 million tons of cargo through the canal annually. Substantial benefits from waterway improvements are likely to occur for commercial vessels, especially container, automobile and bulk (dry and liquid) carriers, by either transporting their cargoes in larger vessels or by reduced sailing time. Alternative routes around the Delmarva Peninsula add up to 150 miles for each vessel trip.

The feasibility phase of the study is investigating navigation improvements for the canal and connecting channels including possible channel deepening from 35 feet to 41 feet below mean low water, widening, anchorage improvements, and refinement of traffic management. The Maryland Port Administration executed the feasibility cost sharing agreement on 31 August 1990.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Chesapeake and Delaware Canal, Baltimore Harbor Connecting Channels (Deepening), DE & MD					

Fiscal Year 1996 funds are being used to complete the feasibility report and the Environmental Impact Statement. The funds requested for Fiscal Year 1997 will be used for Washington Level review. The estimated cost of the feasibility phase is $4,430,000, which is being shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost-sharing is as follows:

Total Estimated Study Cost	$4,830,000
Reconnaissance Phase (Federal)	400,000
Feasibility Phase (Federal)	2,215,000
Feasibility Phase (Non-Federal)	2,215,000

The reconnaissance phase was completed in August 1990. The feasibility study is scheduled for completion in September 1996.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
MARYLAND					
Baltimore Harbor Anchorages and Channels, MD & VA	1,740,000	1,221,000	328,000	191,000	0

Baltimore Harbor and Channels extend from Baltimore, Maryland, on the Patapsco River through the Chesapeake Bay to the Atlantic Ocean in Virginia. It also connects with the Delaware River through the Chesapeake and Delaware Canal. The reconnaissance phase concentrated on the 32-square-mile Patapsco River and tributaries portion of the existing Baltimore Harbor and Channels project. The existing 30 to 35-foot deep anchorages areas are not of sufficient depth, length and width to accommodate vessels now in operation, and anchorages for larger vessels are required. Many vessels are required to anchor in Chesapeake Bay below the Bay Bridge. Anchoring at these areas results in lost travel time of about 25 miles to the port facilities when called to load or unload. An average of more than 4,000 ships annually use the port facilities. The port's overall commerce, both foreign and domestic, consists of general and bulk cargo averaging about 41 million tons annually. The Maryland Port Administration has invested $500,000,000 to provide public terminals in the port and is planning to develop new public terminals. Improved or new branch channels are desired to increase the maneuverability of larger vessels, thus decreasing the time required to shift to and from berth.

The Maryland Port Administration executed the feasibility study cost sharing agreement on 21 May 1993.

The draft feasibility study evaluated several economically justified alternatives which would reduce delays and increase efficiency and safety. The recommended plan consists of the following improvements: widen and deepen Federal Anchorages 3 and 4; widen and provide flared corners for East Dundalk, Seagirt, Connecting, and West Dundalk branch channels; dredge a new branch channel at South Locust Point; dredge a turning basin at the head of the Fort McHenry Channel; and deauthorize Federal Anchorage 1. All dredged material is considered contaminated and will be placed in a containment site to be provided by the non-Federal sponsor.

Fiscal Year 1996 funds are being used to continue the feasibility phase of the study. The funds requested in Fiscal Year 1997 will be used to complete the feasibility phase, including final report preparation. The estimated cost of the

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Baltimore Harbor Anchorages and Channels, MD & VA					

feasibility phase is $2,840,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$3,160,000
Reconnaissance Phase (Federal)	320,000
Feasibility Phase (Federal)	1,420,000
Feasibility Phase (Non-Federal)	1,420,000

The reconnaissance phase was completed in May 1993. The feasibility study is scheduled for completion in April 1997.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Ocean City, MD & Vicinity Water Resources	2,689,000	996,000	850,000	740,000	103,000

The Town of Ocean City and adjacent areas of Worcester County, Maryland, including Ocean City Inlet, Assateague Island, and Chincoteague, Sinepuxent, Assawomman, and Isle of Wight Bays are experiencing a variety of problems with their water resources. The problems are related to the presence of large populations and extensive development in a relatively small area which is subject to dynamic natural processes associated with coastal barrier islands and bays. Many of these problems will impact or are a result of local Corps projects. The Corps has constructed two jetties to stabilize the inlet and maintains navigation channels through the inlet and back bays. In addition, the Corps has constructed a hurricane protection project extending approximately eight miles along the Ocean City shoreline, involving a bulkhead, vegetated dunes, and beach replenishment. These two projects have affected the regional sediment transport system, contributing to down drift erosion and shoaling in navigation channels. The reconnaissance report, prepared in May 1994, identified five feasible and environmentally acceptable projects for further investigation in the feasibility phase: restoration of Assateague Island; restoration of fish and wildlife habitat in the coastal bays; two commercial navigation projects to widen and deepen the Ocean City Harbor and Inlet and to implement a channel adjacent to the Ocean City Fishing Center; and long-term sand placement alternatives, including construction of a sand bypassing and/or back passing plant. Due to the existing condition of Assateague Island (currently being over washed by storms) a separate report is being fast tracked for the restoration of Assateague Island in order to get to construction as quickly as possible.

Many agencies have been involved with the study including: National Park Service, U.S. Fish & Wildlife Service, U.S. Environmental Protection Agency, and the Maryland Department of Natural Resources. Non-Federal sponsors are a combination of the State of Maryland, Worcester County, and the Town of Ocean City.

Fiscal Year 1996 funds are being used to continue the feasibility phase of the study. Fiscal Year 1997 funds will be used to continue the feasibility phase, including completion of the Assateague interim report and continuation of data collection, detailed problem/opportunity definition, formulation of detailed project concepts, public coordination and completion of a draft feasibility report.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Ocean City, MD & Vicinity Water Resources					

The estimated cost of the feasibility phase is $4,050,000 which will be cost-shared on a 50-50 percent basis with non-Federal sponsors. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost-sharing is as follows:

Total Estimated Study Cost	$4,714,000
Reconnaissance Phase (Federal)	664,000
Feasibility Phase (Federal)	2,025,000
Feasibility Phase (Non-Federal)	2,025,000

The reconnaissance phase was completed in July 1995. The interim feasibility study for renourishment of Assateague Island is scheduled for completion in June 1997. A completion date is being determined for the remainder of the study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
NEW YORK					
Hudson River Habitat Restoration	3,025,000	350,000	175,000	375,000	2,125,000

The study area extends 155 miles from the southern limit of the State Barge Canal at Waterford, New York, to the Battery in New York City. The study will address the restoration of Fish and Wildlife resources.

The River and Harbor Act of 1910 authorized a 12 foot navigation channel for the Hudson River, New York -- New York City to Waterford. The project was modified by the River and Harbor Acts of 1935 and 1938, which authorized deepening of the channel to 32 feet to the Federal Lock at Troy New York, and 14 feet to the southern limit of the State Barge Canal at Waterford. Prior to this project, a series of low-profile dikes were constructed by the Corps to create a stable channel for deep-draft navigation between New York City and the Port of Albany, and barge traffic to the New York State Barge Canal System. Dredging the channels by the Corps over the past one hundred years has produced approximately 83,000,000 cubic yards of dredged material, which was disposed of in embayments, marshes, backwaters, and secondary channels behind islands. The dredged material was also used to construct new islands, extend and/or connect existing islands, filling in additional wetland and aquatic habitats. Since 1891 approximately 2,800 acres of wetland and aquatic habitat have been lost and 60 miles of shallow habitat deepened. Striped bass, shad, Atlantic sturgeon and herring use the wetland habitat for spawning and as a primary nursery during their critical developmental stages. The river also contains a rare stable population of the endangered shortnose sturgeon, and certain of the affected habitat is critical for its survival. The National Marine Fisheries Service, the U.S. Fish and Wildlife service, the Museum of the Hudson Highlands, the Nature Conservancy, the Audubon Society, Scenic Hudson, electric utilities and railroads desire habitat restoration.

The study will consider measures such as reestablishing wetlands and aquatic habitat, and removal of barriers to fish migration. Many potential wetland restoration sites identified by an interagency review group were investigated during the reconnaissance phase. Fourteen of these sites were recommended for further study in the feasibility phase. By letter dated 2 August 1995, the NY State Department of Environmental Conservation has indicated their support for the study and their willingness to cost share in the feasibility phase of the study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Hudson River Habitat Restoration					

Fiscal Year 1996 funds will be used to initiate the feasibility phase including surveys and mapping, hydrologic and hydraulic data collection and analysis and data collection for environmental, cultural and real estate analyses for the first interim investigation of Schodak Island, Hudson Bay and Peekskill Bay. The funds requested for Fiscal Year 1997 will be used to continue the data collection and analysis and proceed with plan formulation, habitat evaluations, and design and cost 18 analyses. The cost of the feasibility phase is estimated to be $5,300,000, which is to be shared on a 50-50 basis between Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of cost sharing is as follows:

Total Estimated Study Cost	$ 5,675,000
Reconnaissance phase (Federal)	375,000
Feasibility phase (Federal)	2,650,000
Feasibility phase (Non-Federal)	2,650,000

The reconnaissance phase is scheduled for completion in April 1996. A completion date is being determined for this feasibility study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
b. Flood Damages Prevention Studies:					
MARYLAND					
Anacostia River and Tributaries, MD and DC	3,145,000	1,645,000	334,000	700,000	466,000

The Anacostia River has a total drainage area of 170 square miles, of which 136 square miles are in Maryland, and 34 square miles are in the District of Columbia. The Northeast and Northwest Branches originate in Maryland and flow through several highly urbanized areas before forming the Anacostia River about nine miles upstream from its junction with the Potomac River. The Corps of Engineers' involvement in the basin dates back more than 115 years and includes projects and programs for navigation, flood control, debris removal, and aquatic vegetation control. Two major projects were undertaken. From 1902 through 1940, the District of Columbia portion of the river was channelized, seawalls were built, Kingman Lake and East Lake were constructed, and more than 1,000 acres of mudflats and wetlands were filled with dredged material. The primary purpose of this work was to provide a park for the eastern portion of the city. From 1952 to 1959, a flood control project was constructed in Prince George's County, Maryland, along the Northeast and Northwest Branches and the Anacostia River. A total of 28,000 feet of levees and 14,000 feet of channels were constructed to solve critical flood problems. This effort was successful; however, the construction resulted in a further loss of wetlands and fish and wildlife habitat. A reconnaissance study completed in December 1991 identified extensive potential Federal involvement in the Anacostia watershed restoration effort. The reconnaissance study recommended that additional feasibility studies be conducted at numerous sites in the Anacostia area. The first feasibility study was completed in July 1994 and recommended $18,800,000 in Federal projects for stream restoration and wetland construction. The second feasibility study would investigate additional sites that were identified in the reconnaissance study and are supported by the local agencies for Federal involvement. The potential project sponsors are the State of Maryland, Prince George's County, and Montgomery County.

The funds requested in Fiscal Year 1996 will be used to continue into the second feasibility phase study, including data collection, evaluation of potential project sites, formulation of detailed project concepts, and public involvement.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Anacostia River and Tributaries, MD and DC					

Fiscal Year 1997 funds will be used to continue the technical activities, including environmental impact analysis, development of detailed designs and costs, and public involvement. The preliminary estimated cost of the feasibility phase is $5,570,000 ($2,570,000 for the first study; $3,000,000 for the second study), which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$5,930,000
Reconnaissance Phase (Federal)	360,000
Feasibility Phase (Federal)	2,785,000
Feasibility Phase (Non-Federal)	2,785,000

The reconnaissance phase will be completed in April 1996. A completion date is being determined for this feasibility study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Baltimore Metropolitan Water Resources, MD	1,795,000	505,000	215,000	596,000	479,000

The study area includes portions of the Patapsco River basin plus several small tributaries to the Chesapeake Bay encompassing Baltimore City and portions of Baltimore, and Howard Counties. The Patapsco River watershed has been identified by the State of Maryland as a high-priority tributary to the Chesapeake Bay, as part of their overall Chesapeake Bay strategy to improve the Bay's quality. There are numerous significant water resources-related problems in the study area which can be remedied by environmental restoration. The environmental restoration performed during this study will take a watershed-based ecosystem approach. The intent of this approach is to propose restoration of all feasible water-related resource problems within a selected sub-basin watershed by either the Corps or other resource agencies and organizations. Previous dredging of Federal navigation channels, specifically Baltimore Harbor and Channels, has contributed to the loss and degradation of fish and wildlife habitat, and methods to restore this habitat will be considered including: wetland creation, restoration of riparian vegetation, and removal of fish passage blockages. A favorable reconnaissance report was prepared in October 1994. The report found that no improvements were warranted in the areas of flood damage reduction and shallow draft navigation. The report did find that environmental restoration was warranted. Baltimore City and Baltimore County are the non-Federal sponsors for the Gwynns Falls study. Howard County fully understands the cost-sharing requirements and is expected to be the non-Federal sponsor for the Deep Run and Tiber-Hudson sub-basins study.

Fiscal Year 1996 funds are being used to perform data collection and detailed problem/opportunity definition. Fiscal Year 1997 funds will be used to continue the feasibility phase of the study including, formulation of detailed project concepts, and public coordination. The estimated cost of the feasibility phase is $1,460,000 for the Gwynns Falls sub-basin, and $1,000,000 for the Deep Run and Tiber-Hudson sub-basins that are to be cost-shared on a 50-50 percent basis

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Baltimore Metropolitan Water Resources, MD					

by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$3,025,000
Reconnaissance Phase (Federal)	565,000
Feasibility Phase (Federal)	1,230,000
Feasibility Phase (Non-Federal)	1,230,000

The reconnaissance phase for the Gwynns Falls study was completed in February 1996. The reconnaissance phase for the Deep Run and Tiber-Hudson sub-basins is scheduled for completion in August 1996. The completion dates are being determined for both interim feasibility studies.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Patuxent River Water Resources,MD	2,350,000	350,000	300,000	200,000	1,500,000

The Patuxent River builds from narrow, shallow streams in Montgomery and Howard Counties, Maryland, flows 110 miles in a southeasterly direction, and widens to two miles in the estuary before emptying into the Chesapeake Bay. Federal projects in the basin included a flood control project for Upper Marlboro, Maryland, and navigation projects for Bristol Bar and Nan Cove. The river is located between the intense urban development of Baltimore, Maryland, and Washington, D.C. The water resources problems in the basin reflect the impact of increasing development in terms of environmental degradation. Despite their positive benefits, the construction of the Federal projects contributed to the degradation and loss of the region's fish and wildlife habitats. Initial investigations suggest that there is justification for and Federal interest in environmental restoration activities to restore habitat lost due to all historical impacts, which include Federal projects in the Patuxent River Basin. Solutions to be investigated in order to address the environmental restoration will likely include wetland creation, stream restoration, and restoration of riparian buffers.

Potential non-Federal sponsors for the feasibility study include: Howard, Montgomery, Anne Arundel, Prince Georges, Charles, Calvert, and St. Mary's Counties, and the State of Maryland. These entities fully understand the cost sharing requirements for the feasibility phase of the study.

Fiscal Year 1996 funds are being used to continue the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1997 will be used to complete the reconnaissance phase, and if the reconnaissance report is certified to be in accordance with policy, continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $3,300,000 which will be shared on a 50-50 percent basis by Federal and non-Federal interest. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Costs	$4,000,000
Reconnaissance Phase (Federal)	700,000
Feasibility Phase (Federal)	1,650,000
Feasibility Phase (Non-Federal)	1,650,000

The reconnaissance phase is scheduled for completion in July 1997. A completion date is being determined for this feasibility study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
NEW JERSEY					
South River, Raritan River Basin, NJ	2,800,000	475,000	222,000	400,000	1,703,000

South River is a tributary to the Raritan River located in Middlesex County, New Jersey, draining a 132 square mile watershed, and flowing northerly into the Raritan River. The lower portion of the basin includes the Boroughs of Sayreville, South River, and East Brunswick, and is highly developed and subject to tidal flooding. The upper portion of the basin is experiencing rapid growth.

Flooding from Hurricane Gloria in September 1985 resulted in property damage, evacuations of residents, and disruption of businesses and transportation systems. Recent storms in December 1992 and March 1993 caused extensive damage to residential and commercial properties in Sayreville and South River. The December 1992 storm caused damages estimated at $6,100,000 in the entire basin. Historically, flood elevations have exceeded 6 feet above mean high water. The reconnaissance study indicates that Federal interest exists for a levee plan providing approximately a 100 year level of protection in the South River and Sayreville communities. By letter dated 17 October 1995, the State of New Jersey Department of Environmental Protection has indicated its support for the study and its willingness to cost share in the feasibility phase of the study.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase at full Federal expense and to initiate the cost-shared feasibility study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $4,600,000 which is to be cost-shared on a 50-

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
South River, Raritan River Basin, NJ					

50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$5,100,000
Reconnaissance Phase (Federal)	500,000
Feasibility Phase (Federal)	2,300,000
Feasibility Phase (non-Federal)	2,300,000

The reconnaissance phase is scheduled for completion in April 1996. A completion date is being determined for this feasibility study.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1997

North Atlantic Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Susquehanna River Basin Water Management, NY, PA, & MD	2,500,000	210,000	381,000	209,000	1,700,000

The study area encompasses the Susquehanna River Basin and its 27,510-square mile drainage area which includes portions of New York, Pennsylvania, and Maryland. This study will develop a comprehensive plan to manage the existing reservoir storage in an effort to maintain and enhance aquatic resources as well as minimize flood related damages in the Susquehanna River reaches.

The need for the reservoir storage was demonstrated during the 1991 drought when Cowanesque Lake storage was released in response to low flow conditions. Subsequently, the Susquehanna River Basin Commission has tentatively identified several Corps reservoirs for potential future sources of consumptive use storage. Currently, the Susquehanna River Basin Commission owns storage at two Corps facilities, Cowanesque and Curwensville Lakes. The study will investigate alternatives for managing existing storage during high and low flow events, providing future storage, and will consider related flood damage reduction needs in the basin. Purchase of the make-up storage from existing Corps reservoirs would return as much as $40-100 million to the Federal treasury, as reimbursement toward the original construction cost. The study will also investigate sediment sources, sediment movement, and how sediment effects streams, reservoirs, and the Chesapeke Bay.

The Susquehanna River Basin Commission has shown strong interest in the reconnaissance study and is expected to be the non-Federal sponsor for any recommended feasibility studies. In addition to the Susquehanna River Basin Commission, potential non-Federal sponsors for the feasibility study include the Commonwealth of Pennsylvania and the State of Maryland.

Fiscal Year 1996 funds are being used to complete the reconnaissance report at full Federal expense in September 1996, which is 18 months after initiating the study. The funds requested for Fiscal Year 1997 will be used to complete the reconnaissance phase, and if the reconnaissance report is certified to be in accordance with policy, continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $3,600,000 which will be

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Susquehanna River Basin Water Management, NY, PA, & MD					

shared on a 50-50 percent basis by Federal and non-Federal interest. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Costs	$4,300,000
Reconnaissance Phase (Federal)	700,000
Feasibility Phase (Federal)	1,800,000
Feasibility Phase (Non-Federal)	1,800,000

The reconnaissance phase is scheduled for completion in July 1997. A completion date is being determined for this feasibility study.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1997 — North Atlantic Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
PENNSYLVANIA					
Juniata River Basin	2,500,000	450,000	50,000	600,000	1,400,000

The study area is the Juniata River Basin which drains 3,409 square miles in south-central Pennsylvania. The reconnaissance study evaluated existing problems in the Juniata River corridor and main tributaries to determine if improvements for fish and wildlife restoration, flood damage reduction, and related purposes were warranted. Reconnaissance investigations indicate that there is justification for and a Federal interest in multi-purpose actions to restore lost and degraded habitat and minimize flood-related damages in the Juniata River Basin. The feasibility study will investigate these multi-purpose opportunities in greater detail.

By letter dated 28 September 1995, the Susquehanna River Basin Commission has indicated their support for the study and their willingness to cost share in the feasibility phase of the study.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase at full Federal expense. If the reconnaissance report is certified to be in accordance with policy, Fiscal Year 1997 funds will be used to continue into the feasibility phase of the study, including data collection, detailed problem/opportunity definition, formulation of detailed project concepts and public coordination. The preliminary estimated cost of the feasibility phase is $4,000,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may by in-kind services. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$4,500,000
Reconnaissance Phase (Federal)	$ 500,000
Feasibility Phase (Federal)	$2,000,000
Feasibility Phase (Non-Federal)	$2,000,000

The reconnaissance phase is scheduled for completion in May 1996. A completion date is being determined for this feasibility study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Milton, PA	560,000	472,000	15,000	73,000	0

The Borough of Milton is located on the east bank of the West Branch Susquehanna River, 11 miles above its confluence with the Susquehanna River, in Northumberland County, Pennsylvania. The West Branch drains an area of 6,700 square miles upstream of Milton. The communities of West Milton and New Columbia are located on the opposite bank and immediately upstream of Milton. The study area also includes small portions of Turbot Township and West Chillisquaque Township located on the east bank of the river. The study area has been subject to periodic flooding by the West Branch Susquehanna River. Over the past 60 years, the area has experienced six major floods: 1936, 1946, 1951, 1964, 1972, and 1975. Flooding in April 1993 resulted in river levels of 3.5 feet above flood stage, causing some minor damages and emergency evacuations, as well as significantly increasing local interest in flood protection measures. The greatest flood of record was in June 1972 (Tropical Storm Agnes) and caused damages estimated at about $39,000,000. A recurrence of a flood of this magnitude today would cause an estimated $85 million in damage. The reconnaissance report which was completed in March 1995 indicates that there is justification for and a Federal interest in a local flood control project in the Borough of Milton. Solutions proposed include improvements to the existing flood forecast and warning system and a levee/floodwall system.

Potential non-Federal sponsors include the Borough of Milton and the Commonwealth of Pennsylvania who fully understand the cost-sharing requirements for the feasibility phase of the study.

Fiscal Year 1996 funds are being used to continue coordination with the local sponsors. Fiscal Year 1997 funds will be used to complete the reconnaissance phase, including finalizing the project study plan and negotiating the feasibility cost-sharing agreement. The reconnaissance phase is scheduled for completion in September 1997.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Tentative Allocation FY 1996 $	Allocation FY 1997 $	Additional to Complete After FY 1997 $
Schuylkill River Basin, Schuylkill Haven Area, PA	630,000	200,000	0	175,000	255,000

The study area is located in southeastern Pennsylvania, on the Schuylkill River approximately 118 miles upstream of the confluence with the Delaware River in Philadelphia, Pennsylvania. The Schuylkill River Basin consists of a 1,916 square mile drainage area, of which 126 square miles are above Schuylkill Haven.

The Schuylkill Haven area has a history of widespread and localized flood events. During Hurricane Agnes in June 1972, the Borough of Schuylkill Haven suffered flood damages of over $1,200,000. Localized floods have occurred on the average once every 4 to 5 years. Widespread floods occurred in August 1933, July 1935, May 1942 and June 1972. The southern part of the borough has had a long history of flooding problems which is illustrated by a levee built around 1900 and reinforced by the Work Projects Administration in the 1930's.

A Reconnaissance Study completed in March 1995 identified a plan consisting of a levee and floodwalls as warranting more detailed study in the feasibility phase. In addition, other structural and nonstructural means of local flood protection will be investigated in order to develope a recommended plan of improvement.

This study will give consideration to local flood protection measures against damages from the Schuylkill River which flow through Schuylkill Haven. The Borough of Schuylkill Haven has indicated its interest in serving as non-Federal sponsor in a letter dated 21 March 1995, and understands the cost sharing requirements. The Pennsylvania Department of Environmental Protection is expected to provide the local sponsor with financial support for the study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Tentative Allocation FY 1996 $	Allocation FY 1997 $	Additional to Complete After FY 1997 $
Schuylkill River Basin, Schuylkill Haven Area, PA					

If the reconnaissance report is certified to be in accord with policy, the Fiscal Year 1997 funds will be used to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $860,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,060,000
Reconnaissance Phase (Federal)	200,000
Feasibility Phase (Federal)	430,000
Feasibility Phase (Non-Federal)	430,000

The scheduled completion date for the reconnaissance phase is September 1996. The completion date is being determined for this feasibility study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
WEST VIRGINIA					
North Branch Potomac River Environmental Restoration, WV, MD & PA	1,875,000	499,000	204,000	550,000	622,000

The North Branch Potomac River Basin extends 97 miles and drains 1,328 square miles of West Virginia, Maryland, and Pennsylvania. The watershed features include the Corps of Engineers' multi-purpose Jennings Randolph Lake project and the Savage River Reservoir project which was partially constructed by the Corps of Engineers. In addition, Federal local flood protection projects in Bayard, West Virginia, and Kitzmiller and Cumberland, Maryland, are directly located on the North Branch. Despite their positive benefits, the construction of these projects has contributed to the degradation and loss of the region's fish and wildlife habitats. An estimated 2,000 acres and 20 miles of river reach have been impacted by the existing Federal projects. Of particular concern are the degraded reaches in the Savage and North Branch Potomac Rivers adjacent to a regionally recognized trophy trout stream. The reconnaissance study has focused on flood damage reduction, improvement of recreation opportunities, water quality and fish and wildlife habitat. The reconnaissance report was completed in July 1995 and recommended continuation into the feasibility phase to evaluate environmental restoration projects in the watershed. The feasibility study will focus on measures to restore fish and wildlife habitat and other opportunities to include environmental restoration. For instance, creation of wetland areas adjacent to the river would restore fish and wildlife habitat lost from previous construction activities, and as an incidental benefit, flood overflow zones would reduce downstream river stages and filter out impurities in the water. Other improvements to be investigated include creation of terrestrial habitat, development of riparian fringe habitat, and modification to existing reservoir releases for fishery needs.

Potential non-Federal sponsors for the feasibility phase of the study include the States of Maryland and West Virginia, the Commonwealth of Pennsylvania, as well as the Interstate Commission on the Potomac River Basin and several local governments. These entities fully understand the cost sharing requirements for the feasibility phase of the study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
North Branch Potomac River Environmental Restoration, WV, MD & PA					

Fiscal Year 1996 funds are being used to complete the reconnaissance phase at full Federal expense and, if the reconnaissance report is certified to be in accordance with policy, continue into the feasibility phase of the study, including data collection, detailed problem/opportunity definition, formulation of detailed project concepts, and public coordination. Fiscal Year 1997 funds will be used to continue the technical activities, including environmental impact analysis, development of detailed designs, and public involvement. The preliminary estimated cost of the feasibility phase is $2,600,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interest. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost-sharing is as follows:

Total Estimated Study Cost	$3,175,000
Reconnaissance Phase (Federal)	575,000
Feasibility Phase (Federal)	1,300,000
Feasibility Phase (Non-Federal)	1,300,000

The reconnaissance phase is scheduled for completion in April 1996. A completion date is being determined for this feasibility study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
c. Shoreline Protection Studies:					
DELAWARE					
Delaware Bay Coastline, DE & NJ	3,406,000	2,056,000	652,000	557,000	141,0000

The study area is located along the New Jersey and Delaware shorelines of the Delaware Bay. Approximately 60 miles of shoreline are being investigated, located in two areas; Salem River to Cape May Point in New Jersey, and the Chesapeake and Delaware Canal to Cape Henlopen in Delaware. This study is evaluating adverse impacts associated with storm damages along the shoreline and determining the costs and benefits of potential Federal projects.

The Delaware Bay coast has a long history of severe erosion subjecting shoreline properties to storm damage from wave attack and tidal inundation. This has caused loss of lives, severe economic losses, social disruption and the loss of valuable fish and wildlife habitat. Comparison of early shoreline charts show continual erosion and accretion of shoreline for more than 100 years of record, resulting in substantial quantities of material lost, thereby narrowing and lowering the beaches. Areas under study have erosion rates estimated as high as 15 feet per year. Major storms occurred in August 1933, November 1950, March 1962, March 1984, October 1991, January 1992, and December 1992. The coastal storm of 1962 resulted in the loss of nine lives, physical damage to 1,251 residences and 16 businesses, and economic losses estimated at more than $5,400,000 at that time.

The reconnaissance report, completed in August 1992, recommended that more detailed studies were warranted for the purpose of storm damage reduction. These will consist of a series of seven interim feasibility phase studies for the following areas within New Jersey and Delaware:

New Jersey:	Delaware:
1. Maurice River Area	1. Broadkill Beach
2. Villas and Vicinity	2. Roosevelt Inlet and Lewes Beach
3. Reeds Beach to Pierces Point	3. Port Mahon
4. Oakwood Beach	

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Delaware Bay Coastline, DE & NJ					

The study is supported by the State of New Jersey Department of Environmental Protection , and by the State of Delaware Department of Natural Resources and Environmental Control. The feasibility cost-sharing agreement for areas in Delaware was executed on December 2, 1992, and the feasibility study cost sharing agreement for areas in New Jersey was executed on July 2, 1993.

Fiscal Year 1996 funds are being used to continue the feasibility studies for five interim study areas and continue into the Reeds Beach to Pierces Point, NJ and Oakwood Beach, NJ interim studies. Fiscal Year 1997 funds will be use to complete four of the interim studies (Broadkill Beach, DE; Maurice River, NJ; Roosevelt Inlet and Lewes Beach, DE; and Port Mahon, DE) and continue the feasibility studies at Villas and Vicinity, NJ; Reeds Beach to Pierces Point, NJ; and Oakwood Beach, NJ. The estimated cost of the feasibility studies is $5,912,000 which is cost shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$6,362,000
Reconnaissance Phase (Federal)	450,000
Feasibility Phase (Federal)	2,956,000
Feasibility Phase (Non-Federal)	2,956,000

The reconnaissance phase was completed on December 2, 1992, for Delaware and July 2, 1993, for New Jersey. The interim feasibility studies are scheduled for completion as follows: Broadkill Beach in October 1996; Maurice River in January 1997; Roosevelt Inlet and Lewes Beach in June 1997; Port Mahon in September 1997. Completion dates are being determined for interim feasibility reports at Villas and Vicinity, Reeds Beach to Pierces Point, and Oakwood Beach.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Delaware Coast from Cape Henlopen to Fenwick Island, DE	2,845,000	2,082,000	107,000	288,000	368,000

The study area is located along the entire 25 mile Atlantic Ocean coast of Delaware which includes all of the State's ocean frontage and lies entirely in Sussex County. The purpose of the study is to investigate shore protection and hurricane and storm damage problems and to consider potential solutions.

The Delaware coast has a long history of severe erosion which has caused significant economic losses, loss of lives, extensive flood damages, and social disruption. Comparison of early shoreline charts show continual erosion and accretion of shorelines over a 137-year period resulting in a net shoreline erosion rate of approximately 4 feet per year. The loss of substantial quantities of material has narrowed and lowered the beaches, subjecting public and private property to storm damage from wave attack and tidal inundation. Storms of record that have caused significant damage occurred in August 1933, September 1944, and March 1962. The March 1962 coastal storm caused damage to 1,932 residences and 85 businesses along the Atlantic coastline. The total damage to the entire study area was $16,700,000 (1962 prices). In addition, winter northeasters often buffet the coastline resulting in erosion and associated losses. In recent years, the most notable of these occurred in December 1974, October 1977, March 1984, March 1989, October 1991, January 1992 and December 1992. Damages from the December 1992 storm were estimated to be $1,000,000 along the Atlantic coast of Delaware.

A reconnaissance report determined that more detailed study of shore protection measures are warranted for the purpose of storm damage reduction. The feasibility study is being conducted by three interim studies. The first interim study extends from Rehoboth Beach to Dewey Beach. The second interim extends from Bethany Beach to South Bethany Beach and the final study area will be Fenwick Island. The State of Delaware executed the feasibility study cost sharing agreement on 4 May 1992.

Fiscal Year 1996 funds are being used to complete the feasibility report for Rehoboth Beach to Dewey Beach area and continue the Bethany Beach to South Bethany Beach interim study with hydraulic, environmental, economic and real estate studies. Fiscal Year 1997 funds will be used to continue the Bethany Beach to South Bethany interim study and continue into the Fenwick Island interim study, including economics, environmental, hydraulic and real estate studies. The estimated cost of the feasibility phase is $4,190,000, which is to be shared on a 50-50 percent basis by Federal and

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Delaware Coast from Cape Henlopen to Fenwick Island, DE					

non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$4,940,000
Reconnaissance Phase (Federal)	750,000
Feasibility Phase (Federal)	2,095,000
Feasibility Phase (Non-Federal)	2,095,000

The reconnaissance phase was completed on 4 May 1992. The interim feasibility study for Rehoboth Beach to Dewey Beach is scheduled to be completed in July 1996. Completion dates are being determined for interim feasibility reports at Bethany Beach to South Bethany Beach and for the final report which includes Fenwick Island.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
NEW JERSEY					
Brigantine Inlet to Great Egg Harbor Inlet	1,717,000	1,400,000	85,000	160,000	72,000

The study area is a portion of the New Jersey coastline extending approximately 15 miles from Brigantine Inlet to Great Egg Harbor Inlet. It encompasses five communities including Atlantic City. The principal purpose of the study is to investigate hurricane and storm damage problems attributed to natural and man-made conditions. The study will determine the effects of those conditions on man's activities in the coastal environment in an effort to reduce damages, improve coastal planning and engineering, reduce maintenance dredging of Federal projects and alleviate coastal erosion. Additionally, the understanding of nearshore and estuarine environments and physical processes will assist New Jersey in identifying sources and trajectories for noxious floatable debris and spills of pollutants.

Comparison of shoreline charts show a net erosion of shoreline over the past 159 years of record resulting in a narrowing and lowering of beaches. This has reduced the storm protection that would have otherwise been available. As a result, public and private property are subject to storm damage from wave attack and tidal inundation. During times of storms, extensive damages have occurred, lives have been lost, and when evacuation was considered necessary, families have suffered hardships and inconvenience. Major storms occurred in September 1944, March 1962, March 1984, September 1985, March 1989, October 1991, January 1992, and December 1992. The coastal storm of March 1962 resulted in physical damage to 267 structures and damages of $26,000,000. The December 1992 storm produced the second highest water levels recorded at the Atlantic City, New Jersey, tide gage, resulting in structural damage and extensive beach and dune erosion. Damage which qualified for Federal Emergency Management Agency assistance totaled $2,600,000 for Atlantic County.

The State of New Jersey, Department of Environmental Protection, executed the Feasibility Study Cost Sharing Agreement in January 1993.

A reconnaissance report, completed in February 1992, determined that a more detailed study of shore protection measures is warranted for the purpose of storm damage reduction. The feasibility study is being conducted in two stages. An interim study will be conducted for the reach from Absecon Inlet to Great Egg Harbor Inlet (Absecon Island). This

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Brigantine Inlet to Great Egg Harbor Inlet, NJ					

interim includes substantial data acquisition and analysis to define existing coastal processes and conditions along the entire study area. The final report will cover the coastline from Brigantine Inlet to Absecon Inlet (Brigantine Island).

Fiscal Year 1996 funds are being used to finalize the draft Absecon Island interim study report and draft EIS and continue into the Brigantine Island interim study. Fiscal Year 1997 funds will be used to complete the Absecon Island interim report and continue with the Brigantine Island interim study.

The estimated cost of the feasibility phase is $2,434,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,934,000
Reconnaissance Phase (Federal)	500,000
Feasibility Phase (Federal)	1,217,000
Feasibility Phase (Non-Federal)	1,217,000

The reconnaissance phase was completed in January 1993. The feasibility study for Absecon Island is scheduled for completion in December 1996. The completion is being determined for the final report including Brigantine Island.

23-577 O - 96 - 18

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Lower Cape May Meadows - Cape May Point, NJ	1,300,000	756,000	259,000	231,000	54,000

The study area is located along the southern Atlantic coast of New Jersey, extending approximately 2.5 miles to include Lower Cape May Meadows and the Borough of Cape May Point. Lower Cape May Meadows contains a state park with important coastal freshwater wetlands which is a vital resting area for shorebirds and birds of prey during their seasonal migration along the Atlantic flyway. The Borough of Cape May Point, which is located at the western end of Lower Cape May Meadow, is a community of approximately 600 homes.

The complex interaction of the Delaware Bay and the Atlantic Ocean and construction of the Federal navigation project at Cape May Inlet has also caused erosion along the shoreline approaching 30 feet per year. This has caused repeated local action to construct and rehabilitate groins, provide beach nourishment, and construct dunes since the 1930's. Major storms have occurred in September 1944, March 1962, September 1974, March 1984, September 1985, March 1989, October 1991, January 1992, and December 1992. The coastal storm of March 1962 caused damage to 689 structures in Cape May Point, West Cape May and Lower Township. The December 1992 storm caused extensive damage to beach and dunes at Cape May Point, and breached the dunes fronting Lower Cape May Meadows. It also caused saltwater intrusion in the wetland contained within the Meadows and extensive flooding in Cape May Point and West Cape May. Erosion of the Lower Cape May Meadows shoreline and dune system has degraded fish and wildlife habitat and reduced the productivity of the Meadows' wetland ecosystem.

The study will address restoration of the fish and wildlife habitat, and hurricane and storm damage prevention. Strong support for restoring the habitat within the Lower Cape May Meadows has been expressed by Federal, state and other resource agencies and organizations including the Environmental Protection Agency, U.S. Fish and Wildlife Service, New Jersey Department of Environmental Protection, Ducks Unlimited, New Jersey Audubon Society, and the Nature Conservancy.

The State of New Jersey, Department of Environmental Protection is the non-federal sponsor for this study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Lower Cape May Meadows - Cape May Point, NJ					

As directed in the Fiscal Year 1994 House Committee Appropriations report, the Lower Cape May Meadows reconnaissance study was been expanded to include Cape May Point.

Fiscal Year 1996 funds are being used to continue the feasibility studies, including plan formulation. Fiscal Year 1997 funds will be used for final plan design and draft report preparation. The cost of the feasibility phase is $1,500,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of the study cost sharing is as follows:

Total Estimate Study Cost	$2,050,000
Reconnaissance Phase (Federal)	550,000
Feasibility Phase (Federal)	750,000
Feasibility Phase (Non-Federal)	750,000

The reconnaissance phase was completed in April 1995. A completion date is being determined for this feasibility study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Raritan Bay and Sandy Hook Bay New Jersey	3,189,000	1,222,000	460,000	590,000	917,000

The study area encompasses Raritan Bay and Sandy Hook Bay, at the southern end of the Lower New York Bay between the mouth of the Raritan River and Sandy Hook, in Middlesex and Monmouth Counties, New Jersey.

The study area experiences storm damage due to the loss of protective beaches and increased urbanization in the area. Structures are damaged from coastal storm surges, wave attack and flow from tidal creeks. Further flooding is caused by the lack of any significant drainage slope. Solutions being investigated include extensions and/or improvements to the existing project, which currently provides segmented storm and hurricane damage protection for a few communities in the form of beach fills, dunes, levees, tidegates and appurtenant features. Strong local and state support for a region-wide solution to this problem exists.

The purpose of the study is to determine the advisability of hurricane and storm damage reduction improvements for the Raritan Bay and Sandy Hook Bay shoreline. A feasibility cost sharing agreement for the community of Port Monmouth was executed on 10 February 1994 with the New Jersey Department of Environmental Protection.

Fiscal Year 1996 funds are being used to continue the feasibility phase of the study, including engineering and economic analyses, and environmental impact investigations for the first interim study at Port Monmouth. The funds requested for Fiscal Year 1997 will be used to continue the interim study at Port Monmouth and continue into the interim feasibility study for the community of Union Beach. The estimated cost of the feasibility phase is $5,378,000 which is

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

Raritan Bay and Sandy Hook Bay, NJ

to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$5,878,000
Reconnaissance Phase (Federal	500,000
Feasibility Phase (Federal)	2,689,000
Feasibility Phase (Non-Federal)	2,689,000

The reconnaissance phase was completed in February 1994. Completion dates are being determined for the interim feasibility reports at Port Monmouth, Union Beach, Leonardo, Highlands, Keyport and the final report.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Raritan Bay and Sandy Hook Bay, Cliffwood Beach, NJ	320,000	218,000	77,000	25,000	0

Cliffwood Beach is located in the Aberdeen Township, Middlesex County, New Jersey between Matawan Point and Whale Creek along Raritan Bay. The study area experiences flooding due to the loss of protective beaches and increased urbanization in the area. Structures are damaged from coastal storm surges, wave attack and flow from tidal creeks. Further flooding is caused by the lack of any significant drainage slope. In addition, a locally constructed seawall is threatened due to the erosion and loss of the beach fronting the structure. Solutions to be investigated include beach fill, dunes, levees, tidegates and appurtenant features. There is strong local and state support for the study.

The purpose of the study is to determine the advisability of hurricane and storm damage reduction improvements for the Cliffwood Beach portion of the Raritan Bay and Sandy Hook Bay shore. The New Jersey Department of Environmental Protection has indicated its support for the study and a willingness to cost share in the feasibility phase of the study.

Fiscal Year 1996 funds are being used to complete the reconnaissance report at full Federal expense. The funds requested for Fiscal Year 1997 will be used to complete the reconnaissance report in May 1996, which is 12 months after initiating the study and to complete the reconnaissance phase in September 1997.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Townsends Inlet to Cape May Inlet, NJ	1,250,000	1,129,000	76,000	45,000	0

The study area is located along the southern Atlantic coast of New Jersey, extending approximately 15 miles from Townsends Inlet to Cape May Inlet.

Comparison of shoreline charts show a net erosion of shoreline over the past 159 years of record resulting in a narrowing and lowering of beaches. This has reduced the storm protection that would have otherwise been available. As a result, public and private property are subject to storm damage from wave attack and tidal inundation. During times of storms, extensive damages have occurred, lives have been lost, and when evacuation was considered necessary, families have suffered hardships and inconvenience. Major storms occurred in September 1944, March 1962, March 1984, September 1985, March 1989, October 1991, January 1992, and December 1992. The coastal storm of March 1962 resulted in physical damage to 326 structures and damages of $18,000,000. The December 1992 storm produced the second highest water levels recorded at the Atlantic City, New Jersey, tide gage, resulting in structural damage and extensive beach and dune erosion within the study area. Damage which qualified for Federal Emergency Management Agency assistance totaled $3,400,000 for Cape May County.

A reconnaissance report completed in January 1992 found that a more detailed study of shore protection measures is warranted in the study area. The feasibility report will address storm damage reduction at Avalon, Stone Harbor, and North Wildwood, as well as environmental restoration at the southern end of Stone Harbor.

The principal purpose of the study is to investigate hurricane and storm damage problems attributed to natural and man-made conditions. The study will determine the effects of those conditions in the coastal environment in an effort to reduce damages, improve coastal planning and engineering, reduce maintenance dredging of Federal projects and alleviate coastal erosion. Additionally, an understanding of nearshore and estuarine environments and physical processes will assist New Jersey in identifying sources and trajectories for noxious floatable debris and spills of pollutants. The State of New Jersey, Department of Environmental Protection, executed the feasibility cost sharing agreement on 19 November 1992.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Townsends Inlet to Cape May Inlet, NJ					

Fiscal Year 1996 funds are being used to prepare the draft report and Environmental Impact Statement. Fiscal Year 1997 funds will be used to complete the feasibility report. The estimated cost of the feasibility study is $2,100,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,300,000
Reconnaissance Phase (Federal)	200,000
Feasibility Phase (Federal)	1,050,000
Feasibility Phase (Non-Federal)	1,050,000

The reconnaissance phase was completed in November 1992. The feasibility study is scheduled for completion in March 1997.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
NEW YORK					
Atlantic Coast of New York	7,000,000	768,000	1,038,000	1,400,000	3,794,000

The study area encompasses the Atlantic Coast of New York from Coney Island in the west to Montauk Point, a distance of approximately 130 miles. The shoreline development ranges from highly urbanized in the New York City Boroughs of Brooklyn and Queens and the City of Long Beach in Nassau County to parkland and sparse development to the east. For much of the south shore, the predominant land form is a series of barrier islands separated by six coastal inlets. These barrier islands shelter environmentally sensitive bay areas and low lying, heavily developed mainland areas. The various municipalities along the south shore areas have been subject to severe storm induced flooding and erosion resulting in heavy property damage. Many areas of the south shore are the subject of Federal storm damage reduction studies or projects.

The purpose of this study is to assemble data to address both short term post storm actions and long term storm damage reduction and erosion control measures which will provide a comprehensive baseline which can be utilized for site specific investigations. In coordination with the State of New York, the intent of this effort is to define and monitor the coastal processes which affect the south shore of New York City and Long Island. Programmed work includes physical processes and morphologic response monitoring beach surveys on a seasonal and post-storm basis, aerial photography, shoreline erosion analysis, collection of wave data, and development of predictive models with a computerized data base. The New York State Department of Environmental Conservation and the New York Department of State support this monitoring program.

Fiscal Year 1996 funds are being used to continue the monitoring effort including aerial photography of the coastline, beach profile surveys and the initial development of a computer database that would be accessible to the professional coastal engineering community. The funds requested for Fiscal Year 1997 will be used to continue the seasonal and post-storm monitoring efforts and the testing and implementation of the computer database. A completion date is being determined for this monitoring program.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Jamaica Bay, Marine Park and Plumb Beach, NY	3,000,000	644,000	259,000	600,000	1,497,000

Jamaica Bay, located in the Boroughs of Queens and Brooklyn New York City, is about 8 miles long and 4 miles wide and covers 26 square miles and opens to the Atlantic Ocean via Rockaway Inlet. Marine Park and Plumb Beach are located on the north side of Rockaway Inlet. The community of Arverne is located on the Rockaway peninsula.

Major storm damage affects the communities of Arverne, Broad Channel and Howard Beach. Arverne's low ground elevations put its residential and commercial structures at risk of storm and flood related damages. Approximately 280 residential, commercial and public structures are affected. Commercial businesses have been forced to cease operations due to floods. Emergency vehicles have been prevented from reaching flooded areas. Jamaica Bay has undergone habitat degradation related to Federal activities past and present. Impacts to Jamaica Bay include extensive wetland/aquatic habitat losses, shoreline alterations and water quality degradation from adverse hydrological changes. As a result, Jamaica Bay has been identified for significant environmental restoration. The reconnaissance phase determined that the Plumb Beach area does not warrant further study under this survey. However, further investigations will be continued under the beach erosion control Continuing Authorities Program.

The purpose of this study is to determine the feasibility of providing storm protection to Arverne and environmental restoration to Jamaica Bay. The New York City Department of Environmental Protection has indicated by letter dated 7 June 1995 its support for an environmental restoration study and its willingness to cost share in the feasibility phase. The New York State Department of Environmental Conservation has confirmed their support for the Arverne component by letter dated 20 October 1995. The New York State Department of Environmental Conservation has execution the feasibility cost-sharing agreement for the Jamaica Bay environmental restoration study on 16 February 1996.

Fiscal Year 1996 funds are being used to continue into the feasibility phase of the study including surveys and mapping, hydrologic and hydraulic data collection and analysis and data collection for environmental, cultural and real estate analyses for the interim feasibility study of the environmental restoration of Jamaica Bay. The funds requested for Fiscal Year 1997 will be used to continue the data collection and analysis for the environmental restoration interim study. The preliminary estimated cost of the feasibility phase is $5,000,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests.

Study	Estimated Federal Cost	Prior to FY 1996	Allocation FY 1996	Allocation FY 1997	to Complete After FY 1997
$	$	$	$	$	
Jamaica Bay, Marine Park and Plumb Beach, NY					

Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total estimated study cost	$5,500,000
Reconnaissance Phase (Federal)	500,000
Feasibility Phase (Federal)	2,500,000
Feasibility Phase (Non-Federal)	2,500,000

The reconnaissance phase was completed in February 1996. A completion date is being determined for this feasibility study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Yonkers Shoreline, NY	500,000	118,000	357,000	25,000	0

The City of Yonkers, located in the southwestern corner of Westchester County, abuts the northern boundary of New York City. The Yonkers shoreline area consists of approximately 4.5 miles of the eastern bank of the Hudson River. The area is a mixture of commercial and industrial development with some environmentally sensitive lands also located along the riverfront.

Local interests indicate that the shoreline properties are subject to recurring erosion and storm damage. Existing bulkheads are old and deteriorating, offering minimal protection for existing properties. Damage caused by the December 1992, exacerbated the problem and increased the areas vulnerability to storm damage. Local interests also indicate concern that marine operations, including commuter ferry service is threatened by storm damage. The most probable non-Federal sponsor would be the State of New York.

The reconnaissance study will consider the entire 4.5 mile reach of the Yonkers shoreline, with upstream and downstream locations studied only to the extent that they impact the Yonkers study area. The expected outcome of the reconnaissance effort is the identification of a feasible plan which remediates the most critical damage areas.

Fiscal Year 1996 funds are being used to complete the reconnaissance report and develop a project study plan for the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to complete the reconnaissance report in May 1996, which is 12 months after initiating the study, and to complete the reconnaissance phase in September 1997.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
VIRGINIA					
Chesapeake Bay Shoreline, Poquoson, VA	375,000	0	74,000	301,000	0

The study area encompasses the city of Poquoson, Virginia, located along the western shore of Chesapeake Bay just north of the city of Hampton. The area is low lying with no protective barriers such as sand dunes or seawalls between the developed portions of the city and the bay. The major portion of the city of Poquoson is less than 7 feet above mean sea level. Large sections of the city have been subjected to tidal flooding in varying degrees of intensity. The flood of record occurred in August 1933, from a major hurricane. Maximum tide heights during this flood were recorded to 9 feet, with an average height of about 8.3 feet. Another flood occurred in March 1962, which caused hundreds of homes to be inundated, some to depths of 2 to 4 feet. The 1933 and 1962 storms produced 80 year and 15 year tidal flood events, respectively. Since 1962, considerable growth has occurred in the city of Poquoson with residential development increasing by an average of 100 new residential units each year. A recurrence of the 1933 and 1962 storm events today would cause damages of approximately $11 million and $8 million, respectively.

By letter dated 7 November 1994, the city of Poquoson indicated their support for the study and their willingness to cost share the feasibility phase studies.

Fiscal Year 1996 funds will be used to initiate the reconnaissance phase of the study at full Federal expense. The reconnaissance study will evaluate providing improvements for shoreline protection against hurricanes and other storm events. The funds requested in Fiscal Year 1997 will be used to complete the reconnaissance phase, negotiate a feasibility cost sharing agreement, and develop an initial project study plan for the feasibility phase of the study. The reconnaissance study is scheduled to be completed in July 1997, which is 12 months after initiating the study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
d. Special Studies:					
MARYLAND					
Anacostia River Federal Facilities Impact Assessment, MD & DC	600,000	0	148,000	442,000	10,000

The Anacostia River watershed extends through portions of Maryland and the District of Columbia. The watershed is 170 square miles in size and is highly urbanized. As a result of the Federal Government's development in the Washington region, substantial lands in the Anacostia watershed are in Federal ownership. More than 15 Federal facilities, owned by numerous agencies, encompass about 25 square miles or 15 percent of the Anacostia watershed. Consequently, the Federal Government has the opportunity to play a major role in regional environmental initiatives. In Section 114(d) of the Water Resources Development Act of 1992, Congress directed the Secretary of the Army to carry out a comprehensive assessment of the adverse watershed impacts from Federal facilities and to review the current plans for reducing such adverse impacts in the Anacostia basin. This assessment will address the potential for several types of environmental restoration, including terrestrial habitat restoration, aquatic habitat restoration, creation of wetland habitat, and sediment/stormwater control, at the specific Federal facilities. It is expected that these projects would be creative, cost-effective measures that would be in consonance with other Federal, state, and local activities underway in the watershed.

There is a strong ongoing program in the Anacostia River watershed to restore fish and wildlife habitat, promote good environmental practices, and implement many environmental restoration projects. This program was initiated by a regional agreement in 1987 and is led by the multi-jurisdictional Anacostia Watershed Restoration Committee. Support for this study extends across local, state, and regional agencies, as well as at the national level.

Fiscal Year 1996 funds are being used to initiate the technical activities for the comprehensive assessment, including public and agency coordination, problem identification, and mapping. Fiscal Year 1997 funds will be used to continue the comprehensive assessment at full Federal expense, including development of detailed designs and costs, report preparation, and public involvement. A completion date is being determined for this assessment report.

Additional Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	to Complete After FY 1997 $
Chesapeake Bay Time Variable Model, MD, VA, PA & DC	3,000,000	2,230,000	248,000	522,000	0

The study area includes the freshwater and tidal portions of Chesapeake Bay and tributaries and encompasses parts of Maryland, Virginia, Pennsylvania, and the District of Columbia. The study area is also directly related to the Bay's 64,160-square-mile drainage area which reflects a variety of land use and run-off characteristics. Over the past several decades, major land use changes and population growth in the study area have resulted in significant increases in nutrients, toxins, erosion, and turbidity in the Bay and its tributaries. This has resulted in major declines in dissolved oxygen and living resources. The Environmental Protection Agency's Chesapeake Bay Study concluded in 1983 that the Bay's tributaries are under severe stress and that immediate action is needed to restore their environmental health and productivity.

Prior to Fiscal Year 1994, a numerical time variable three dimensional hydrodynamic and water quality model was developed as part of a cooperative effort between the Department of the Army and the Environmental Protection Agency. That large scale model was developed to answer nutrient reduction management questions for the main body of Chesapeake Bay. The total Federal cost of that modeling effort was $3,225,000 of which the Environmental Protection Agency contributed $1,725,000 and the Corps contributed $1,500,000. On December 12, 1993, a new Memorandum of Understanding was executed to extend the model to answer smaller scale tributary management questions. The Environmental Protection Agency's share for this new modeling effort is $1,500,000. Corps funds in the amount of $1,500,000 are being used for development of the hydrodynamic elements of the model. Development of the model will also expand the ability to predict impacts on the Bay from various Department of the Army activities.

Fiscal Year 1996 funds are being used to complete the hydrodynamic model and continue the tributary-specific water quality processes and calibrations. The funds requested for Fiscal Year 1997 will be used to perform final calibrations and run specific scenarios to help determine tributary management strategies. Study completion is defined as the development of a calibrated model which is scheduled to be completed in September 1997.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Smith Island Environmental Restoration & Protection, MD	450,000	0	150,000	300,000	0

Smith Island is Maryland's only inhabited offshore island and is an area rich in cultural and historical significance, having been settled by British colonists in the early 1700's. There are three towns on the island, each with a rustic working harbor, with hardy watermen who make their livelihood from oystering and crabbing. The island has undergone substantial loss and modification of its environmental resources, a portion of which may be attributable to Corps of Engineers projects. As key wetlands and intertidal areas are affected by the interaction of man and nature, the beneficial role that these resources play in flood damage reduction, erosion protection, and ecological diversity has been reduced. In the past 100 years, 1,200 acres of Smith Island have eroded into the Chesapeake Bay, and future erosion will destroy the island if left unchecked. The Corps of Engineers maintains navigation works for the island, all of which were formulated and constructed prior to today's recognition of fish and wildlife values. The existing Federal navigation projects include: a channel from Twitch Cove to deep water in the Chesapeake Bay, with twin jetties at the entrance; an anchorage basin connecting with the west side of the channel at Ewell; an extension of the channel in Levering Creek; a channel from Tyler Creek to and including an anchorage basin at Tylerton; a channel from Shanks Creek to and including an anchorage basin at Rhodes Point; a channel from Big Thorofare to Tylerton; and a channel from Rhodes Point to Tylerton.

Many upland dredged material placement areas were created over wetlands. In all, an estimated 50 acres of habitat have been impacted. This study will investigate restoration of fish and wildlife habitat lost from previous construction activities and erosion control. Although erosion affects nearly all of Smith Island, none is as threatened as Rhodes Point. Hog Neck Peninsula is the only buffer between the Bay and the community of houses and crab shanties. Erosion also is threatening public sewer facilities at Tylerton.

Potential non-Federal sponsors are the State of Maryland and Somerset County. These entities fully understand the cost sharing requirements for the feasibility phase of the study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Smith Island Environmental Restoration & Protection, MD					

Fiscal Year 1996 funds are being used to initiate the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1997 will be used to complete the reconnaissance report and the negotiations on a feasibility study cost sharing agreement for the feasibility phase of the study. The reconnaissance phase is scheduled for completion in September 1997.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
VIRGINIA					
Nansemond River Basin, Suffolk, VA	500,000	0	274,000	226,000	0

The watershed is located in the city of Suffolk in the Hampton Roads area of southeastern Virginia. The river is about 34 miles in length and has a drainage area of about 220 square miles. The lower portion of the river is tidal with a mean tide range of 2.8 to 3.8 feet and empties into the James River at the mouth. There is an existing small navigation project with a depth of 12 feet and a width of 100 feet. The upper portion of the river is non-tidal and includes 7 reservoirs plus 2 smaller lakes which provide the entire water supply for the cities of Suffolk and Portsmouth and contain 90 percent of the surface water supplies for the cities of Norfolk and Virginia Beach. Much of the river is in a natural environmental state. The population projections indicate increases on the order of 25 percent by the turn of the century and 60 percent by the year 2030 with most of that, and the supporting development pressure, expected to occur in the Nansemond River corridor. This demonstrates a need for evaluating the impacts of development on hydrology and the ecosystem since there will likely be a peak growth period in the future. In addition, a portion of the Great Dismal Swamp National Wildlife Refuge lies within Suffolk as well as many acres of surrounding wetlands.

The Hampton Roads area is the fastest growing area in Virginia, and the city of Suffolk has been identified as the next sector of Hampton Roads where current and future urban expansion is anticipated. Waterfront property is at a premium in Hampton Roads and Suffolk, including the Nansemond River. The area is accessible to the heavy employment areas of Norfolk, Portsmouth, Chesapeake, Virginia Beach, and the military bases via an integrated system of interstate highways and tunnels. Recent completion of the Monitor-Merrimac Bridge Tunnel provides immediate access to the cities of Newport News and Hampton. This is an area which would clearly benefit from a watershed planning effort. There are many opportunities for environmental restoration, including wetlands, fish and wildlife habitat restoration, and water quality improvements to support that habitat, which could be clearly identified and prioritized through a watershed management plan. Moreover, a watershed management plan could integrate Federal, state and local efforts to pursue multiple objectives, including flood damage prevention and environmental restoration, while providing for reasonable development of the area. The watershed study would provide a basis for the Corps issuing general permits that would minimize or avoid any impacts on wetland areas while making the approval of minor activities easier for the public. Restoration of degraded wetlands as mitigation for the permitted activities could be better managed. The watershed plan

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Nansemond River Basin, Suffolk, VA					

will also identify those areas that are generally unsuitable for development. By letter dated 8 October 1993, the city of Suffolk indicated their support for the study and their willingness to cost share in feasibility phase studies.

Fiscal Year 1996 funds will be used to initiate the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1997 will be used to complete the reconnaissance report, negotiate a feasibility cost sharing agreement, and develop a Project Study Plan for the feasibility phase of the study. The reconnaissance report is scheduled to be completed in March 1997, which is 12 months after initiating the study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
e. Comprehensive Studies: None					
f. Project Review Studies:					
MARYLAND					
Jennings Randolph Lake, MD & WV - Reallocation	712,000	478,000	200,000	34,000	0

The existing Jennings Randolph Lake project is located in Garrett County, Maryland, and Mineral County, West Virginia, on the North Branch of the Potomac River about eight miles above its confluence with the Savage River at Bloomington, Maryland. In addition to providing flood damage protection, the project provides water supply for meeting municipal and industrial needs along the North Branch and also contributes to meeting water supply requirements in the Washington Metropolitan Area. Increasing population and economic growth in the Potomac River Basin are causing severe demands on the basin's water resources. Future drought conditions will result in marked reduction in natural stream flow in the Potomac River and freshwater inflow to the Chesapeake Bay. The State of Maryland and the water supply utilities in the Washington, D.C. area have indicated interest in the reallocation of storage at the Jennings Randolph Lake project. The reconnaissance level report confirmed that reallocation of storage at Jennings Randolph could be both a cost-effective and environmentally acceptable solution to meet these needs. The local sponsor for the study and the potential project sponsor is the State of Maryland which executed the feasibility study cost-sharing agreement on 30 August 1990. Due to technical issues, the study was suspended for approximately two years. The issues were resolved and a revised feasibility study cost-sharing agreement was executed in March 1995.

Fiscal Year 1996 funds are being used to continue the feasibility phase of the study. Fiscal Year 1997 funds will be used to complete the feasibility phase including report preparation, public involvement, and internal and public review of the report. The estimated cost of the feasibility phase is $1,424,000 which will be shared on a 50-50 percent basis

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Jennings Randolph Lake, MD & WV - Reallocation					

by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of the study cost-sharing is as follows:

Total Estimated Study Cost	$1,424,000
Reconnaissance Phase (Federal)	0
Feasibility Phase (Federal)	712,000
Feasibility Phase (Non-Federal)	712,000

The reconnaissance phase was completed in December 1989. The feasibility study is scheduled for completion in April 1997.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
NEW YORK					
Addison	305,000	230,000	0	75,000	0

The Village of Addison is located at the confluence of the Canisteo River and Tuscarora Creek in Steuben County in southern New York State. Prior to 1947, Addison suffered periodic flooding with the flood of record occurring in 1935. In 1947 a local flood protection project consisting of a system of levees, floodwalls, and channel improvements was constructed by the Corps of Engineers. The project was designed to protect against flows 30 and 25 percent greater than those for the 1935 and 1940 floods on the Canisteo River and Tuscarora Creek, respectively. However, the June 1972 flood exceeded the project design discharge by approximately 40 percent and overtopped the existing project. Significant damage occurred to over 50 residential, commercial, and industrial structures, and the potential for catastrophic flooding was present. Based on analyses done for a 1980 flood insurance study prepared by the Federal Emergency Management Agency, the level of flood protection provided by the existing project is for flows having recurrence intervals of once in 40 years and 10 years on the Canisteo River and Tuscarora Creek, respectively. In August 1989, the Village of Addison requested that a reevaluation of the existing project be undertaken. The reconnaissance report, completed in April 1995, indicates that the project provides a low level of protection and that a project modification is economically justified.

In a letter dated 19 April 1995, the New York State Department of Environmental Conservation has indicated their support for the study and their willingness to cost share in the feasibility phase of the study.

There were no funds programmed for Fiscal Year 1996. Fiscal Year 1997 funds will be used to complete the reconnaissance phase, including finalizing the project study plan and negotiating the feasibility cost-sharing agreement. The reconnaissance phase is scheduled for completion in September 1997.

3. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - NEW: None

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
4. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - CONTINUING:					
a. Navigation:					
DELAWARE					
Chesapeake and Delaware Canal, Baltimore Harbor Connecting Channels (Deepening), DE & MD	2,572,000	0	0	1,210,000	1,362,000

The existing Federal navigation project for the Chesapeake and Delaware Canal is 44 miles long, 35 feet deep and 450 feet wide from the Delaware River to the Chesapeake Bay off Pooles Island. The Baltimore Harbor Connecting Channels northern channel is 13 miles long, 35 feet deep and 600 feet wide. These projects provide deep draft commercial channels for ships calling at Baltimore, Maryland, with a shortcut to and from Philadelphia, Pennsylvania, the northeast United States and Europe. The present canal dimensions were authorized in 1954 and the connecting channels were authorized in 1958, based on vessel characteristics and traffic levels which are now significantly exceeded. Almost 11,000 vessels transport 17 million tons of cargo through the canal annually. The feasibility study is addressing the need for improving the existing canal and connecting channel characteristics and is scheduled for completion in September 1996. The preliminary recommended project consists of deepening the existing 35-foot project to 40-feet mean low water, including an enlarged flare at Reedy Point, a widen bend at Sandy Point and an emergency anchorage at Howell Point. The preliminary estimated project cost is $94,300,000, with an estimated Federal cost of $76,100,000 and non-Federal cost of $18,200,000. The average annual benefits for transportation savings amount to $8,721,000, contained in the Formulation Package dated February 1995. The benefit-cost ratio is 1.3 to 1. The potential project sponsor is the Maryland Port Administration.

Consistent with the cost-sharing and financing concepts enacted by the Water Resource Development Act of 1986, local interests are required to provide all lands, easements, rights-of-way, relocations, and dredged material disposal areas, and bear all costs of terminal facilities and dredging in berthing areas, presently estimated at $9,800,000; pay 25 percent of costs allocated to deep draft navigation, presently estimated at $8,400,000; and pay an additional 10 percent

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Chesapeake and Delaware Canal, Baltimore Harbor Connecting Channels (Deepening), DE & MD					

of costs allocated to deep draft navigation, less a credit for the value of lands, easements, rights-of-way, relocations (other than utility relocations), and dredged material disposal areas within the 30 years following completion.

Fiscal Year 1997 funds will be used to continue into the preconstruction engineering and design phase and the appropriate National Environmental Protection Act (NEPA) documents. A summary of preconstruction engineering and design cost-sharing is as follows:

Total Preconstruction Engineering and Design Effort Cost	$3,430,000
Preconstruction Engineering and Design Effort (Federal)	2,572,000
Preconstruction Engineering and Design Effort (Non-Federal)	858,000

The completion date is being determined for this preconstruction engineering and design effort.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Delaware River Main Channel Deepening DE, NJ & PA	10,000,000	9,018,000	826,000	156,000	0

The project extends over 100 miles from deep water in Delaware Bay to the Port of Philadelphia. Current channel depths of 40 feet are inadequate to efficiently handle existing bulk commodity vessels. A February 1992 interim feasibility report recommends deepening the existing 40 foot project to 45 feet, widening bends, and anchorage deepening. The project justification is based on transportation savings to commodities consisting of oil, iron ore, stone, coal, and containerized cargo. The estimated project cost is $421,500,000, with estimated Federal and non-Federal costs of $263,040,000 and 158,460,000, respectively. The average annual benefits amount to $42,900,000, all for transportation savings. The benefit-cost ratio is 1.3 to 1. The Delaware River Port Authority by letter dated December 5, 1991, indicated its intent to comply with the cost sharing provisions of the Water Resources Development Act of 1986.

The project is authorized for construction by the Water Resources Development Act of 1992 with the following cost sharing requirements: provide lands, easements, rights-of-way, and relocations necessary for the construction and subsequent maintenance including the prorated costs of using existing and future Federal disposal areas including retaining works, bear all costs of terminal facilities and dredging in berthing areas, presently estimated at $28,500,000, pay 25 percent of cost allocated to general navigation during construction, presently estimated at $87,200,000 and pay an additional 10 percent of costs allocated to general navigation, less a credit for the value of lands, easements, rights-of-way, relocations (other than utility relocations), and dredged material disposal areas, within a period of 30 years following completion.

Fiscal Year 1996 funds are being used to continue preconstruction engineering and design including the completion of the Design Memorandum and the appropriate National Environmental Protection Act (NEPA) documents, and to initiate the preparation of plans and specifications. Funds in Fiscal Year 1997 will be used to complete the preparation of plans and specifications. This preconstruction engineering and design effort is scheduled for completion in December 1996.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
MARYLAND					
Baltimore Harbor Anchorages and Channels, MD & VA	675,000	0	0	338,000	337,000

Baltimore Harbor and Channels extend from Baltimore, Maryland, on the Patapsco River through the Chesapeake Bay to the Atlantic Ocean in Virginia, and through the Chesapeake and Delaware Canal and Delaware Bay to the Atlantic Ocean in Delaware. The project area consists of the 32-square-mile Patapsco River and tributaries portion of the existing Baltimore Harbor and Channels project. The existing anchorages and branch channels serving the Port of Baltimore public terminals are not of sufficient depth, length and width to accommodate vessels now in operation. The draft feasibility study evaluated several economically justified alternatives that would reduce delays and increase efficiency and safety. The feasibility study is scheduled for completion in April 1997. The preliminary recommended project consists of the following improvements: widen and deepen Federal Anchorages 3 and 4; widen and provide flared corners for East Dundalk, Seagirt, Connecting, and West Dundalk branch channels; dredge a new branch channel at South Locust Point; dredge a turning basin at the head of the Fort McHenry Channel; and deauthorize Federal Anchorage 1. All dredged material is considered contaminated and will be placed in a containment site to be provided by the non-Federal sponsor. The preliminary estimated project cost is $32,000,000, with an estimated Federal cost of $24,000,000 and an estimated non-Federal cost of $8,000,000. The average annual benefits amount to $21,000,000, essentially all for transportation savings, are based on the draft feasibility study dated July 1995. The benefit-cost ratio is 9.9 to 1. The project sponsor is the Maryland Port Administration.

Consistent with the cost-sharing and financing concepts enacted by the Water Resource Development Act of 1986, local interests are required to provide all lands, easements, rights-of-way, relocations, and dredged material disposal areas, and bear all costs of terminal facilities and dredging in berthing areas; pay 25 percent of costs allocated to deep draft navigation, and pay an additional 10 percent of costs allocated to deep draft navigation, less a credit for the value of lands easements, rights-of-way, relocations (other than utility relocations), and dredged material disposal areas within the 30 years following completion.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Baltimore Harbor Anchorages and Channels, MD & VA					

Fiscal Year 1997 funds will be used to continue into the preconstruction engineering and design phase. The preconstruction engineering and design phase is estimated to cost $900,000 which is to be shared on a 75-25 basis by Federal and non-Federal interest. A summary of the cost sharing is as follows:

Total Preconstruction Engineering and Design Effort Cost	$900,000
Preconstruction Engineering and Design Effort (Federal)	675,000
Preconstruction Engineering and Design Effort (Non-Federal)	225,000

A completion date is being determined for this preconstruction engineering and design effort.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1997 North Atlantic Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to complete After FY 1997 $
NEW YORK					
Arthur Kill Channel, Howland Hook Marine Terminal, NY & NJ	3,600,000	1,346,000	950,000	1,200,000	104,000

The project area is located within the Port of New York and New Jersey. The Arthur Kill is a tidal strait connecting Raritan Bay with Newark Bay. The navigation channel depths inhibit full economy of existing deep draft ocean going vessels. Tankers arriving with drafts approaching the 45 foot Ambrose and Anchorage entrance channel depths must lighter off to barges in anchorages in order to reduce their drafts to safely transit the 35 foot deep inshore channels. Container vessels cannot lighter in anchorages and therefore must load to less than full depths for long ocean voyages at substantially increased cost. A public notice issued on 16 December 1985, recommended deepening the existing 35 foot navigation channel to 41 feet for 2.1 miles, thence 40 feet for 1.0 mile. These improvements will allow full loading and increased vessel efficiencies. There would also be selected widenings for safety. The estimated project construction cost is $72,100,000, with estimated Federal and non-Federal costs of $44,200,000 and $27,900,000, respectively. The average annual benefits amount to $20,100,000, all for transportation savings, based on the latest evaluation approved in the Board of Engineers for Rivers and Harbors report for Arthur Kill Channel, New York and New Jersey, dated 31 March 1986, at October 1985 price levels. The benefit-cost ratio is 4.2 to 1. The potential local sponsor for the project is the Port Authority of New York and New Jersey.

The project is authorized for construction by the Water Resources Development Act of 1986 with the following cost sharing requirements: local interests will be required to provide relocation of utilities, material disposal areas, bear all costs of terminal facilities, and dredging in berthing areas, estimated at $13,200,000; pay 25 percent of costs allocated to general navigation during construction, estimated at $14,700,000, and pay an additional 10 percent of costs allocated to general navigation, less a credit for the value of lands, easements, rights-of-way, relocations (other than utility relocations), and dredged material disposal areas, within a period of 30 years following completion.

Fiscal Year 1996 will be used to continue preconstruction engineering and design, including continuation of subsurface exploration and detailed engineering and design. The funds requested for Fiscal Year 1997 will continue the pre construction engineering and design effort. A completion date is being determined for this preconstruction engineering and design effort.

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
VIRGINIA					
Atlantic Intracoastal Waterway Bridge at Great Bridge	2,000,000	915,000	741,000	344,000	0

The Atlantic Intracoastal Waterway is a navigation route parallel to the Atlantic coast between Norfolk, Virginia, and the St. John's River in Florida. The present bridge at Great Bridge, which was built by the Corps of Engineers, was opened to traffic in August 1943. It is a double-swing two-lane highway bridge carrying Virginia's Route 168 traffic over the Albemarle and Chesapeake Canal and was adequate at the time it was built for a rural area. However, the bridge now connects a multi-lane highway through a heavily traveled area serving a busy urban commercial center. The bridge is seriously overloaded, carrying double its design capacity and needs new mechanical and electrical equipment. Navigation is also adversely affected due to restrictions on bridge openings. Structural problems have required local officials to lower the maximum vehicle weight on the bridge to 13 tons. A feasibility report was completed in Fiscal Year 1994. The recommended project, estimated to cost $26,500,000 with an estimated Federal cost of $22,800,000 and an estimated non-Federal cost of $3,700,000, includes replacement of the existing bridge with a five-lane, double-leaf, rolling-lift bascule bridge located approximately 100 feet east of the existing bridge. The average annual benefits amount to $4,230,000, all for transportation, based upon the latest economic analysis dated July 1994. The benefit-cost ratio is 1.9 to 1. The city of Chesapeake, the project sponsor, expressed support for the project in January 1994 and is aware of project cost sharing requirements. In addition, the City has agreed to assume ownership of the bridge and all operation, maintenance, repair, replacement, and rehabilitation responsibilities.

The project is authorized for construction by the National Highway System Designation Act of 1995. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests will be required to provide lands, easements, rights-of-way, relocations, approaches, and any costs associated with widening a small culvert bridge on the north approach roadway, presently estimated at $1,250,000; bear all costs of betterments to the project, presently estimated at $2,450,000; and provide all costs of operation, maintenance of the bridge, presently estimated at $255,000 annually.

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Atlantic Intracoastal Waterway Bridge at Great Bridge, VA					

Fiscal Year 1996 funds are being used to continue preconstruction engineering and design, including plans and specifications. Fiscal Year 1997 funds will be used for completion of preconstruction engineering and design, including completion of plans and specifications, in May 1997.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
b. Beach Erosion Control:					
NEW YORK					
Long Beach Island	1,550,000	419,000	389,000	742,000	0

The project area is located on Long Island from Jones Inlet to East Rockaway Inlet and comprises 9 miles of oceanfront. The major problem along the Long Island coastline is the vulnerability of portions of the beach and adjacent development to direct wave attacks during major storms and hurricanes. Damaging storms have occurred in 1950, 1953, 1960, 1962, 1984, 1991 and 1992. In September 1960, Hurricane Donna forced the evacuation of over 300 families. A recurrence of this storm would result in approximately $21,100,000 in damages based on October 1995 prices and conditions. The recommended plan in the feasibility report dated February 1995 includes protection against a 100-year storm event for approximately 7 of the 9 miles of shoreline by raising the beach berm, dune reconstruction, rehabilitation of existing groins, construction of additional groins, and periodic nourishment over the 50-year economic life of the project. The estimated project cost is $371,000,000 with an estimated Federal cost of $241,000,000 and an estimated non-Federal cost of $130,000,000. The average annual benefits amount to $16,980,000 of which $15,400,000 is for storm damage reduction, and $1,580,000 is for recreation, based upon the latest economic analysis dated February 1995. The benefit-cost ratio is 1.9 to 1. The potential project sponsor is the New York State Department of Environmental Conservation.

Consistent with the cost sharing and financing concepts enacted by the Water Resources Development Act of 1986, local interests will be required to provide lands, easements, rights-of-way and relocations; pay a portion of the initial construction costs allocated to storm damage reduction, so that the total contributions of the local interests is equal to 35 percent of the initial construction cost allocated to storm damage reduction; bear all costs of betterments to the project; pay 35 percent of the costs allocated to periodic nourishment over 50 years; and provide all costs of operation, maintenance and replacement of storm damage reduction facilities.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

Long Beach Island, NY

Fiscal Year 1996 funds are being used to continue preconstruction engineering and design including preparation of plans & specifications. Fiscal Year 1997 funds will be used for completion of preconstruction engineering and design which will include the completion of plans and specifications, execution of the project cooperation agreement and preconstruction monitoring. This preconstruction engineering and design effort is scheduled for completion in August 1997.

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
VIRGINIA					
Sandbridge, Virginia Beach	1,250,000	631,000	336,000	283,000	0

Sandbridge is in the southeastern section of the city of Virginia Beach located along 5 miles of the Atlantic coast of Virginia. The coastline and adjacent development is vulnerable to direct wave attacks during storms and hurricanes. In March 1962, a northeast storm caused $787,000 in damages in March 1962 prices. A recurrence of this storm would cause $16.7 million in damages at October 1995 prices. A November 1994 storm caused $2.5 million in damages. The Division Engineer's notice for the Sandbridge, Virginia Beach, feasibility study was issued in June 1992. The recommended project, estimated to cost $317,000,000 with an estimated Federal cost of $206,000,000, and an estimated non-Federal cost of $111,000,000, includes the construction of a beach berm with an average width of 50 feet and at an elevation of 6.0 feet National Geodetic Vertical Datum (NGVD) along the 5 mile stretch of beach from the Naval Training Facility at Dam Neck to the Back Bay National Wildlife Refuge. Periodic beach nourishment is estimated in 2 year intervals following initial construction. The average annual benefits amount to $3,786,000, all for hurricane and storm damage reduction. The benefit-cost ratio is 1.2 to 1, based upon the latest economic analysis dated June 1992. The city of Virginia Beach, the local sponsor, expressed support for the project in June 1994 and is aware of project cost sharing requirements.

The project is authorized for construction by the Water Resources Development of 1992. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests will be required to provide lands, easements, and rights-of-way; pay 35 percent of the costs allocated to hurricane and storm damage reduction, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of the project; and pay 35 percent of the costs allocated to periodic nourishment over 50 years.

Fiscal year 1996 funds are being used to continue preconstruction engineering and design, including initiation of Plans and Specifications. Fiscal Year 1997 funds will be used to complete preconstruction engineering and design, including plans and specifications, which is scheduled for completion in April 1997.

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
c. Flood Control:					
MARYLAND					
Jennings Randolph Lake, MD & WV - Reallocation	1,425,000	0	0	37,000	1,388,000

The existing Jennings Randolph Lake project is located in Garrett County, Maryland, and Mineral County, West Virginia, on the North Branch of the Potomac River about eight miles above its confluence with the Savage River at Bloomington, Maryland. In addition to providing flood damage protection, the project provides water supply for meeting municipal and industrial needs along the North Branch and also contributes to meeting water supply requirements in the Washington Metropolitan Area. Increasing population and economic growth in the Potomac River Basin are causing severe demands on the basin's water resources. Future drought conditions will result in marked reduction in natural stream flow in the Potomac River and freshwater inflow to the Chesapeake Bay. The State of Maryland and the water supply utilities in the Washington, D.C. area have indicated interest in the reallocation of storage at the Jennings Randolph Lake project. A feasibility report is expected to be completed in April 1997. The recommended plan, estimated to cost about $6 million, would provide for reallocating about 5,000 to 10,000 acre-feet of storage at the project. The average annual benefits are estimated at about $3 million, all for water supply, based on the latest evaluation approved in December 1989 at 1989 price levels. The benefit cost ratio is estimated to be 7.8 to 1. The local sponsor for the study and the potential project sponsor is the State of Maryland which executed the feasibility study cost sharing agreement on 30 August 1990. An amendment to the agreement was executed in March 1995.

Consistent with the cost-sharing and financing concepts enacted by the Water Resources Development Act of 1986, local interests are required to pay all costs allocated to municipal and industrial water supply and bear all costs of operation, maintenance, and replacement of municipal and industrial water supply facilities.

Fiscal Year 1997 funds will be used to continue into the preconstruction engineering and design phase including negotiation of the water supply contract. The preliminary preconstruction engineering and design phase is estimated to

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Jennings Randolph Lake, MD & WV - Reallocation					

cost $1,900,000 which is to be shared on a 75-25 basis by Federal and non-Federal interest. A summary of the cost sharing is as follows:

Total Preconstruction Engineering and Design Effort Cost	$1,900,000
Preconstruction Engineering and Design Effort (Federal)	1,425,000
Preconstruction Engineering and Design Effort (Non-Federal)	475,000

A completion date is being determined for this preconstruction engineering and design effort.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
NEW JERSEY					
Raritan River Basin Green Brook Sub-Basin	24,000,000	18,358,000	2,861,000	2,781,000	0

The Green Brook Sub-Basin project area is located within the Raritan River Basin in north-central New Jersey in Middlesex, Somerset and Union Counties. It drains approximately 65 square miles of primarily urban and industrialized area. On 28 August 1971 Hurricane Doria caused $22,200,000 in damages. Another major storm occurred on 2 August 1973 causing six deaths and resulting in $25,800,000 in damages. At October 1995 prices these damages would be $85,200,000, and $89,300,000 respectively. Hurricane Doria produced the maximum flood of record in the lower portion of the Green Brook Sub-Basin. A feasibility report was completed in Fiscal Year 1980. The recommended plan , Plan E from the 1980 feasibility report, consists of approximately 15 miles of levees and floodwalls along Green Brook and its tributaries; 6 pumping stations; 12 bridge alterations and approximately 3 miles of stream alignment. Non-structural and environmental features included in the plan are 9 property acquisitions, floodproofing of 33 structures and replanting of 75 to 100 acres in the project ponding area. The estimated project construction cost for Plan E is $152,000,000, with an estimated Federal cost of $103,800,000 and a non-Federal cost of $48,200,000. The State of New Jersey, the Green Brook Flood Control Commission, and local communities support the authorized plan, Plan A from the 1980 feasibility report, or a modified version thereof. The estimated project construction cost for Plan A is $337,000,000, with an estimated Federal cost of $224,750,000 and a non-Federal cost of $112,250,000. The average annual benefits amount to $16,600,000 of which $15,200,000 are urban flood damage prevention and $235,000 for advance replacement of bridges based on the latest evaluation at November 1992 prices. The benefit to cost ratio is 1.3 to 1. By letter dated September 13, 1995, the State of New Jersey, Department of Environmental Protection and Energy, indicated a willingness to be the project sponsor and cost-share the project.

The project is authorized for construction by the Water Resources Development Act of 1986 with the following cost sharing requirements: local interests will be required to provide lands, easements, rights-of-way, and relocations, estimated at $95,400,000; pay 5 percent cash contribution, presently estimated at $16,850,000; and bear all costs of operation, maintenance and replacement of flood control facilities, presently estimated at $116,000 annually.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Raritan River Basin					
Green Brook Sub-Basin					

Fiscal Year 1996 funds are being used to prepare a general reevaluation report which will identify a basin wide National Economic Development Plan and a locally preferred plan and to continue preconstruction engineering and design, for the lower portion of the sub-basin. Specific technical studies include hydraulic and hydrologic analyses, environmental, cultural and economic investigations, subsurface exploration and data collection. The funds requested for Fiscal Year 1997 will be used to complete the general reevaluation report and plans and specifications. This preconstruction engineering and design effort is scheduled for completion in August 1997.

d. Multiple Purpose Power: None

APROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Kill Van Kull & Newark Bay, New York and New Jersey (Continuing)

LOCATION: The project is located in New York Harbor five to eight miles southwesterly of the Battery, New York City between Staten Island, New York, and Bayonne, New Jersey.

DESCRIPTION: Programmed work consists of dredging of about five miles of the Kill Van Kull Channel to 40 feet with widenings at Robins Reef, St. George and Bergen Point; dreging of about 3 miles of the Newark Bay Channels to 40 feet, with widenings at the site of the Central Railroad Bridge and the junction with the Port Newark Channel; dredging of a turning basin at Port Elizabeth; and dredging of about 5 miles of pierhead channel at Port Newark and Port Elizabeth, also to 40 feet. Unprogrammed work would deepen all channels from 40 to 44 feet.

AUTHORIZATION: Supplemental Appropriations Act of 1985 and Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because project construction of programmed work is complete.

TOTAL BENEFIT-COST RATIO: 2.9 to 1 at 8 1/8 percent.

INITIAL BENEFIT-COST RATIO: 6.9 TO 1 at 8 1/8 percent (FY 1985)

BASIS OF BENEFIT-COST RATIO: Benefits are from the approved General Design Memorandum dated June 1986 at October 1985 price levels.

SUMMARIZED FINANCIAL DATA:

Estimated Appropriation Required (CoE)		$326,200,000
Programmed Construction	197,686,000	
Unprogrammed Construction	128,514,000	
Estimated Appropriation Requirement (U.S. Coast Guard)		2,290,000
Programmed Construction	2,290,000	
Unprogrammed Construction	0	

	STATUS (1 Jan 96)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Programmed Work			
	Contract 1	100	Apr 1988
	Contract 2	100	Feb 1991
	Contract 3	100	Oct 1990
	Contract 4A	100	Dec 1993
	Contract 4B	100	Sep 1995
	Contract 4C	100	Sep 1995
	Contract 5	100	Dec 1989

SUMMARIZED FINANCIAL DATA (Continued)

Unprogrammed Work						
Estimated Total Appropriation Requirement			$328,490,000	Deepening all channels to authorized depths	0	being determined
Programmed Construction		199,976,000				
Unprogrammed Construction		0				
Future Non-Federal Reimbursement			$ 43,977,900	Entire Project	66	being determined
Programmed Construction		27,538,700				
Unprogrammed Construction		16,439,200				
Estimated Federal Cost (Ultimate)			282,222,100			
Programmed Construction		172,437,300				
Unprogrammed Construction		109,784,800				
Estimated Non-Federal Cost			245,987,900			
Programmed Construction		156,045,700				
Cash Contribution	64,749,000					
Other Costs	63,758,000					
Reimbursements	27,538,700					
Unprogrammed Construction		89,942,200				
Cash Contribution	49,227,600					
Other Costs	26,963,000					
Reimbursements	13,751,600					
Total Estimated Programmed Construction Costs			328,483,000			
Total Estimated Unprogrammed Construction Costs			202,017,000			
Total Estimated Project Cost			530,500,000			
Allocations to 30 September 1995			195,038,000			
Conference Allowance for FY 1996			0			
Allocation for FY 1996			195,038,000			
Allocation through FY 1996			195,038,000			
Allocation Requested for FY 1997			600,000			
Programmed Balance to Complete after FY 1997			2,048,000			
Unprogrammed Balance to Complete after FY 97			128,514,000			

JUSTIFICATION: Cargo handled at Port Newark and Port Elizabeth, which together comprise one of the nation's larger containerports, was about 17.5 million tons in 1987. The 35-foot channels in the Kill Van Kull and Newark Bay precluded present generation containerships from fully loading and hampered future fleets of larger draft vessels. The average annual benefits, all commercial navigation, are $325,500,000 at 1 October 1990 price levels.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Planning, Engineering and Design-Phase II	$ 600,000
Total	$ 600,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Dredging berthing areas and relocate utilities where necessary for project construction.	$90,721,000	
Pay 25 percent of the costs allocated to deep draft navigation during construction.	111,289,000	
Pay an additional 10 percent of the costs allocated to deep draft navigation within a period of 30 years following completion of construction which is partially offset by a credit allowed for the value of lands, easements, rights of way, relocation (except utility relocations), and dredged material disposal areas.	43,977,900	
Total Non-Federal Costs	$245,987,900	

The non-Federal sponsor has also agreed to repay its share of construction costs during construction and reimburse its share of construction costs over a period of 30 years following completion of construction.

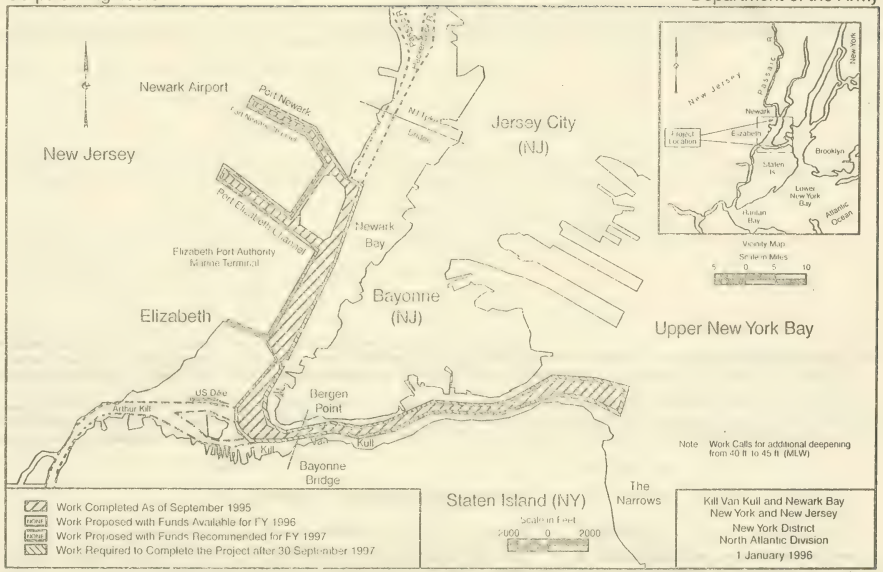
STATUS OF LOCAL COOPERATION: A Local Cooperation Agreement (LCA) with the Port Authority of New York and New Jersey, the non-Federal sponsor, was executed for the programmed work on 30 May 1986. A modification of the LCA was executed on 21 May 1987 to reflect the criteria of the Water Resources Development Act of 1986.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $326,200,000 is an increase of $16,200,000 from the latest estimate ($310,000,000) presented to Congress (FY 1995). This change includes the following items:

ITEM	AMOUNT
Price Escalation on Construction Features	$16,200,000
Total	$16,200,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement (EIS) was filed with the Environmental Protection Agency (EPA) on 31 July 1981. A Supplemental EIS was filed with EPA on 14 February 1986. The Final Supplement to the EIS was filed with EPA on 13 February 1987. Record of Decision was executed on 1 April 1987.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1984 and funds to initiate construction were appropriated in FY 1985. The remaining work (deepening the channels to their authorized depth), may be programmed later in conjunction with the desires of local interests.



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18 MARCH 1996

APPROPRIATION TITLE: Construction, General - Channels and Harbor (Navigation)

PROJECT: New York Harbor Collection and Removal of Drift, New York and New Jersey (Continuing)

LOCATION: The project covers all of the Port of New York including shores and tidal tributaries of Sandy Hook and Raritan Bays, Raritan River, Arthur Kill, Kill Van Kull, Lower New York Bay, Passaic and Hackensack Rivers, Upper New York Bay, Lower Hudson River, Harlem and East Rivers, the western part of Long Island Sound, and Jamaica Bay. It encompasses seven New Jersey and seven New York counties. The port embraces about 1,500 square miles. It has frontage of 755 miles measured along the shoreline of its navigable waters of which 460 miles are in New York and 295 miles are in New Jersey.

DESCRIPTION: The project plan consists of demolition and disposal of derelict vessels, debris along the shores, and unoccupied deteriorated shore structures, and repair of occupied deteriorated structures throughout the Port of New York to reduce hazards to navigation by removing the potential sources of drift at the source and also to restore the shores of New York harbor to full use. The programmed portion of the project consists of the completed reaches shown in the status listing and the Weehawken-Edgewater 2A Reach in New Jersey and the Brooklyn 2A reach in New York. All other work is unprogrammed.

AUTHORIZATION: Water Resources Development Act of 1974, Water Resources Development Act of 1976, Supplemental Appropriations Act of 1987, and Water Resources Development Act of 1988.

REMAINING BENEFIT-REMAINING COST RATIO: 3.6 to 1 at 5 7/8 percent.

TOTAL BENEFIT-COST RATIO: 3.6 to 1 at 5 7/8 percent.

INITIAL BENEFIT-COST RATIO: 6.3 to 1 at 5 7/8 percent (FY 1975).

BASIS OF BENEFIT-COST RATIO: Benefits are based on a March 1991 Economic Reanalysis Report, revised in July 1991, at December 1990 price levels, that analyzed the economic viability of completing the project as proposed in the 1975 Phase I General Design Memorandum.

SUMMARIZED FINANCIAL DATA:

Estimated Federal Cost			$130,000,000
Programmed Construction		46,150,000	
Unprogrammed Construction		83,850,000	
Estimated Non-Federal Cost			149,500,000
Programmed Construction		46,677,000	
Cash Contribution	$ 20,447,000		
Other Costs	26,230,000		
Unprogrammed Construction		102,823,000	
Cash Contribution	44,553,000		
Other Costs	58,270,000		

Total Estimated Programmed Construction Cost	92,827,000
Total Estimated Unprogrammed Construction Cost	186,673,000
Total Estimated Project Cost	$ 279,500,000

		ACCUM. PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Allocations to 30 September 1995	45,104,000				
Conference Allowance for FY 1996	100,000		Liberty State Park 1-5, NJ	100	
Allocation for FY 1996	92,000 1/		East River, NY	100	
Allocations through FY 1996	45,196,000	34	East River, Piers 17-18,NY	100	
Allocations Requested for FY 1997	100,000	35	Elizabeth, NJ	100	
Programmed Balance			Stapleton, Staten Island,NY	100	
to Complete after FY 1997	854,000		Hoboken, NJ	100	
Unprogrammed Balance			Bayonne 1, NJ	100	
to complete after FY 1997	83,850,000		Bayonne 2, NJ	0	being determined
			Hoboken Pier B, NJ	100	
			Weehawken-Edgewater 1, NJ	100	
			Weekawken-Edgewater 2, NJ	100	
			Weehawken-Edgewater 2A,NJ	100	
			Jersey City North 1, NJ	100	
			Jersey City North 2, NJ	100	

1/ Reflects $8,000 reduction for savings and slippage.

STATUS (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Jersey City South, NJ	100	
Brooklyn 1, NY	100	
Brooklyn 2A, NY	10	being determined
Brooklyn 2B, NY	0	being determined
Shooters Island, NY & NJ	0	being determined
Arthur Kill, NJ	0	being determined
Arthur Kill, NJ	0	being determined
Passaic River, NJ	0	being determined
Jamaica Bay, NY	0	being determined
Kill Van Kull,Staten Is, NY	0	being determined
Manhattan, NY	0	being determined
Entire Project	33	being determined

PHYSICAL DATA

Collect and remove sources of drift from New York Harbor. Sources of drift include deteriorated piers and wharfs, other deteriorated non-repairable structures, debris lying along the shores, repairable piers and wharfs, and other repairable shore structures.

JUSTIFICATION: In spite of the existing Federal program for collection and removal of drift in navigable harbor waters, an estimated 17,800 commercial, public, and recreational vessels collide with drift annually, causing damage to propellers, shafts, and hulls. Average annual repair costs and other economic losses for 1990 are estimated to exceed $52,700,000. Drift clutters recreational shores, menaces swimmers, and spreads marine borer infestation. The sources of drift deface the waterfront, prevent optimum use of property and depress property values. Fire hazards would be reduced by removing the unused deteriorated shore structures. Uncontrolled burning of inflammable material adds to the existing air pollution problem. Elimination of drift from sources such as deteriorated shore structures and debris lying along shores would contribute to reduced water pollution by decreasing the available amount of organic material in harbor waters. The piers which would be repaired or removed under the improvement presently constitute a hazard to employees working on those structures, are an unattractive nuisance, and are a potential area for injuries or loss of life. The project would improve existing conditions in the harbor and meet immediate and future needs of commercial vessels and recreational boating. Upon completion of improvements, the States of New Jersey and New York, respectively, will be responsible for enforcing laws controlling sources of drift.

JUSTIFICATION: (cont'd)

The remaining annual benefits are as follows:

Benefits	Amount
Navigation Safety	$82,824,000
Regional Development	217,000
Marina Cleanup	2,377,000
Cleaning Shoreline of Drift	4,783,000
Enhanced Recreational Experience	234,000
Benefits from Pier Repairs	4,509,000
TOTAL	$94,944,000

FISCAL YEAR 1997: The total program amount including the request of $100,000 will be applied as follows:

Construction Management:

Brooklyn 2A Reach: $ 100,000

NON-FEDERAL COST: In accordance with the authorizing legislation, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Annual Payments During Construction and Reimbursements	Operation, Maintenance, and Replacement Costs
Pay 33 1/3 percent of the costs allocated to navigation.	$ 65,000,000	
Pay all costs associated with repair and maintenance of structures.	84,500,000	
Total Non-Federal Costs	$ 149,500,000	$0

The non-Federal sponsors have also agreed to make all payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The New York State Department of Environmental Conservation is the non-Federal sponsor for all work in New York State. Local Cooperation Agreements (PCA's) for the East River, Stapleton, and Brooklyn 1 reaches were executed in December 1979, July 1983, and August 1984, respectively. The New Jersey Department of Environmental Protection is the non-Federal sponsor for all work in New Jersey. PCA's for Elizabeth, Hoboken, Jersey City South, Weehawken to Edgewater, and Bayonne reaches were executed in October 1982, June 1984, August 1984, and April 1986, respectively. A PCA for the Jersey City North reach was executed in September 1987 with the New Jersey Department of Environmental Protection and modified in March 1992. A PCA for the Brooklyn 2A reach is scheduled to be executed in August 1996 with the New York State Department of Environmental Conservation.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $130,000,000 is an increase of $3,000,000 from the latest estimate ($127,000,000) presented to Congress (FY 1996). This change includes the following items:

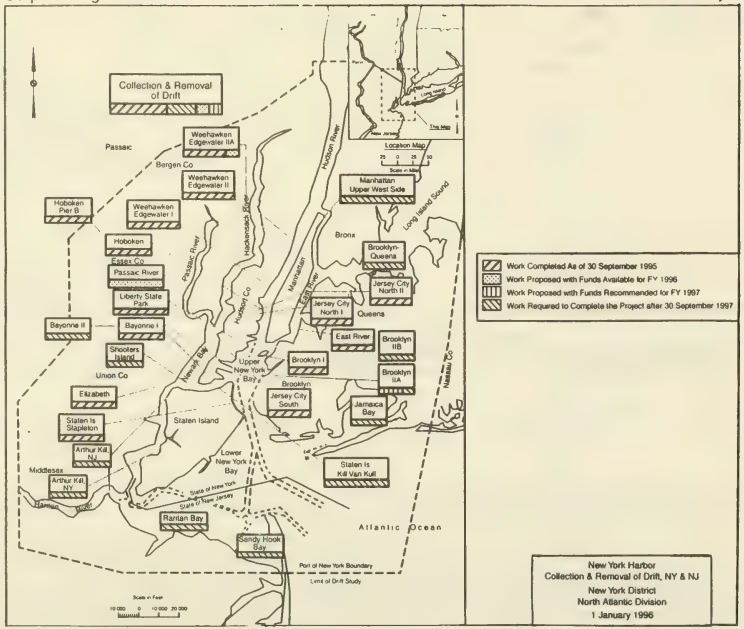
Item	Amount
Price Escalation on Construction Features	$ 3,000,000
Total	$ 3,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement for the overall project and Liberty State Park Area 1 was filed with the Council on Environmental Quality on 26 March 1976. An Environmental Assessment is included in the General Design Memorandums for the Jersey City North and Brooklyn 2A reaches.

OTHER INFORMATION: Funds were appropriated to initiate preconstruction engineering and design in FY 1974 and funds were appropriated to initiate construction in FY 1975.

Corps of Engineers

Department of the Army



18 MARCH 1996

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Norfolk Harbor and Channels (Deepening), Virginia (Continuing)

LOCATION: The project is located in Hampton Roads, Virginia, a 25-square mile natural harbor serving the ports of Norfolk, Newport News, Portsmouth, Chesapeake, and Hampton, Virginia.

DESCRIPTION: Programmed work encompasses deepening a 2.5 mile section of the Southern Branch of the Elizabeth River from a depth of 35 feet to 40 feet, including an 800 foot turn basin, and the construction of a 1500 foot diameter anchorage area with a depth of 50 feet. Unprogrammed work encompasses deepening the outbound lanes of existing main channels to a depth of 55 feet, constructing a new ocean channel to a depth of 60 feet, and deepening a 6.3 mile section of the Southern Branch to a depth of 45 feet. Dredging the outbound channels to a depth of 50 feet was completed in 1988, and the Lower Bay Beneficial Uses Study was completed in August 1994.

AUTHORIZATION: Supplemental Appropriations Act of 1985 and Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 1.6 to 1 at 8 1/8 percent.

TOTAL BENEFIT-COST RATIO: 1.6 to 1 at 8 1/8 percent.

INITIAL BENEFIT-COST RATIO: 3.7 to 1 at 8 1/8 percent (FY 1985).

BASIS OF BENEFIT-COST RATIO: Benefits are from the General Design Memorandum approved in July 1986 at October 1986 price level and the Supplemental Engineering Report approved in August 1989 at October 1989 price level.

SUMMARIZED FINANCIAL DATA		STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Appropriation Requirement (CoE)	$137,400,000			
Programmed Construction	30,501,000			
Unprogrammed Construction	106,899,000	50 Foot Outbound	100	December 1988
		55 Foot Outbound	0	Being Determined
Estimated Appropriation Requirement (Coast Guard)	833,000	55 Foot Outbound (Anchorage)	30	Being Determined
Programmed Construction	306,000	Southern Branch 45 Foot	0	Being Determined
Unprogrammed Construction	527,000	Southern Branch 40 Foot	25	Being Determined
		Entire Project	14	Being Determined

SUMMARIZED FINANCIAL DATA (Continued)

Estimated Appropriation Requirement (US Navy)			3,508,000	
Programmed Construction		3,508,000		
Unprogrammed Construction		0		
Estimated Total Appropriation Requirement			141,741,000	
Programmed Construction		34,315,000		
Unprogrammed Construction		107,426,000		
Future Non-Federal Reimbursement			11,433,000	
Programmed Construction		999,000		
Unprogrammed Construction		10,434,000		
Estimated Federal Cost (Ultimate) (CoE)			125,967,000	
Programmed Construction		29,502,000		
Unprogrammed Construction		96,465,000		
Estimated Non-Federal Cost			132,392,000	
Programmed Construction		22,389,000		
Cash Contribution	14,869,000			
Other Costs	6,521,000			
Reimbursements	999,000			
Unprogrammed Construction		110,003,000		
Cash Contribution	77,069,000			
Other Costs	22,500,000			
Reimbursements	10,434,000			
Total Estimated Programmed Construction Cost				55,705,000
Total Estimated Unprogrammed Construction Cost				206,995,000
Total Estimated Project Cost				262,700,000

ACCUM.
PCT. OF EST.
FED COST

CHANNELS	PHYSICAL DATA DEPTH (feet m.l.w.)	WIDTH (feet)	LENGTH (miles)
Thimble Shoal	60	650	9.6
Norfolk Harbor	55	650	13.4
Newport News	55	650-800	8.4
Elizabeth River and Southern Branch	55	800	6.2
Southern Branch	45	375-750	6.3
	40	250-500	2.5

ANCHORAGES	DEPTH (feet m.l.w.)	RADIUS (feet)
55 Foot	55	1,500
Sewells Point	45	1,500

592

SUMMARIZED FINANCIAL DATA (Continued)		ACCUM. PCT. OF EST. FED COST
Allocations to 30 September 1995	17,676,000	
Conference Allowance for FY 1996	600,000	
Allocation for FY 1996	550,000 1/	
Allocations Through FY 1996	18,226,000	14
Allocation Requested for FY 1997	1,200,000	15
Programmed Balance to Complete after FY 1997	11,075,000	
Unprogrammed Balance to Complete after FY 1997	106,899,000	

1/ Reflects $50,000 reduction assigned as savings and slippage.

JUSTIFICATION: The existing channels in the Port of Hampton Roads are not deep enough to accommodate the increasing vessel sizes which transport principal commodities such as coal and grain. Hampton Roads coal terminals already receive colliers in excess of 100,000 deadweight tons which cannot sail fully loaded with the existing channels 50 feet deep, making unit transportation costs higher. When the project is completed, larger vessels will be able to load to capacity, providing a savings in the delivery of cargo to final destinations. The project will assist in improving the United States competitive position as a major coal exporter. Average annual benefits are as follows:

Annual Benefits	Amount
Transportation Savings (50 Foot Outbound)	$26,400,000
Transportation Savings (55 Foot Outbound)	22,200,000
Transportation Savings (Southern Branch 45 foot)	3,499,000
Transportation Savings (Southern Branch 40 foot)	2,550,000
Total	$54,649,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Planning, Engineering and Design:	
Elizabeth River Southern Branch	$1,000,000
55 Foot Outbound (Anchorage)	200,000
Total	$1,200,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
50 Foot Outbound Element:		
Pay Craney Island dredged material disposal area tolls.	575,000	
Pay the costs of improvements to access channels and berthing areas ($2,987,000) and relocate a 30 inch diameter water main ($339,000).	3,326,000	
Pay 50 percent of the costs allocated to deep draft navigation greater than 45 feet during construction and pay 25 percent of the costs of incremental maintenance below 45 feet below mean low water.	9,564,000	150,000
Pay an additional 10 percent of the costs allocated to deep draft navigation within a period of 30 years following completion of construction (which is partially offset by relocation of the 30 inch diameter water main and a credit allowed for the Craney Island dredged material area tolls).	999,000	
Subtotal Non-Federal Costs (50 Foot Outbound Element)	$14,464,000	$150,000

NON-FEDERAL COST (Continued)

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Remaining Elements:		
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	2,620,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	22,500,000	
Pay 50 percent of the costs allocated to deep draft navigation greater than 45 feet during construction and pay 25 percent of the costs of incremental maintenance below 45 feet mean low water.	82,374,000	
Pay an additional 10 percent of the costs allocated to deep draft navigation within a period of 30 years following completion of construction.	10,434,000	
Subtotal Non-Federal Costs (Remaining Elements)	$117,928,000	$ 0
Total Non-Federal Costs	$132,392,000	$150,000

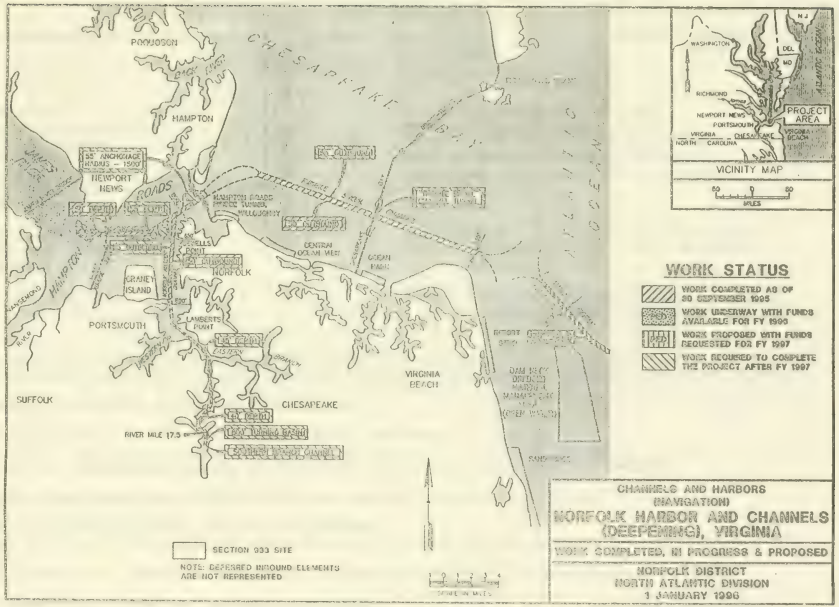
The non-Federal sponsor has also agreed to make all required payments concurrently with project construction and reimburse its share of construction costs over a period of 30 years following completion of construction.

STATUS OF LOCAL COOPERATION: A Local Cooperation Agreement (LCA) for the first phase (50 foot Outbound) was executed 15 May 1986 with the Commonwealth of Virginia, and LCA Modification No. 1 was executed 13 February 1987 to reflect the criteria of the Water Resources Development Act of 1986. Supplements to the existing LCA will be executed to accommodate completion of future elements. The supplemental Project Cooperation Agreement (PCA) for the 50 foot anchorage is currently scheduled to be executed in December 1997. A PCA for the Southern Branch of the Elizabeth River is currently scheduled for execution in November 1998.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (CoE) cost estimate of $137,400,000 is the same as the latest estimate ($137,400,000) presented to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (FEIS) and Addendum were filed on 3 April 1981. A final Supplement I to the FEIS was filed on 14 June 1985. An Environmental Assessment is scheduled for completion in March 1996 for the 50 Foot Anchorage.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1985. The first phase of the project provided an outbound channel 50 feet deep. The Inbound 50 and 55 foot Channel phases have been deferred due to the absence of currently identified economic or operational need. The remainder of the project will be programmed in coordination with local interests. The Virginia Port Authority expressed support for new starts of the 55 foot and Southern Branch elements in letters dated 26 July 1989 and 20 June 1989. While the Commonwealth strongly supported the 55 foot project, design efforts were temporarily suspended in 1990 due to Virginia's budgetary constraints. A long-term dredged material management study was initiated in FY 1985. This study concentrated on the needs of the inner harbor and was completed in FY 1994. In letters dated 27 September 1990 and 8 January 1992, the Virginia Port Authority confirmed the Commonwealth's support for the Southern Branch and provided assurances that they would be a cost-sharing partner for the remaining elements when a decision is made to construct these features. The Virginia Port Authority has also expressed interest in the 50 Foot Anchorage improvements to the 50 Foot Outbound Element in a letter dated 10 June 1993.


CHESAPEAKE BAY
ATLANTIC OCEAN
POQUOSON
HAMPTON
NEWPORT NEWS
HAMPTON ROADS
NORFOLK
GRANBY ISLAND
PORTSMOUTH
SUFFOLK
CHESAPEAKE
VIRGINIA BEACH
RIVER MILE 17.5
SECTION 933 SITE
NOTE: DEFERRED INBOUND ELEMENTS ARE NOT REPRESENTED
WASHINGTON
RICHMOND
NEWPORT NEWS
PORTSMOUTH
VIRGINIA BEACH
PROJECT AREA
VICINITY MAP
MILES
WORK STATUS
WORK COMPLETED AS OF 30 SEPTEMBER 1995
WORK UNDERWAY WITH FUNDS AVAILABLE FOR FY 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997
CHANNELS AND HARBORS (NAVIGATION)
NORFOLK HARBOR AND CHANNELS (DEEPENING), VIRGINIA
WORK COMPLETED, IN PROGRESS & PROPOSED
NORFOLK DISTRICT
NORTH ATLANTIC DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Construction General - Beach Erosion Control

PROJECT: Delaware Coast Protection, Delaware (Continuing)

LOCATION: The project is located in Sussex County, Delaware, on the Atlantic Ocean at Indian River Inlet.

DESCRIPTION: The plan of improvement consists of constructing a sand bypassing plant and periodic nourishment of a feeder beach at Indian River Inlet. All work is programmed.

AUTHORIZATION: Flood Control Act of 1968 and the Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable because initial construction is complete.

TOTAL BENEFIT-COST RATIO: Not applicable because initial construction is complete.

INITIAL BENEFIT - COST RATIO: 2.0 to 1 at 6 1/8 percent.

BASIS OF BENEFIT-COST RATIO: Atlantic Coast of Delaware General Design Memorandum, approved January 1986 at October 1984 price levels and a Reevaluation Report approved February 1984 at October 1983 price levels.

SUMMARIZED FINANCIAL DATA				STATUS: (1 JAN 96)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost			$12,800,000	Initial Construction	100	
Initial Construction	2,266,000			Periodic Nourishment	19	Being Determined
Periodic Nourishment	10,534,000			Entire Project	50	Being Determined
Estimated non-Federal Cost			14,800,000			
Initial Construction		441,000		PHYSICAL DATA:		
Cash Contributions	441,000			Project Area Length:3,500 feet sand bypass		
Other Costs	0			plant designed to provide the necessary		
Periodic Nourishment		14,359,000		volume of sand to the feeder beach. Feeder		
Cash Contributions	0			beach requires bypassing an average		
Other Costs	14,359,000			of 100,000 cubic yards each year.		

SUMMARIZED FINANCIAL DATA (Continued)

			ACCUM. PCT. OF EST. FED. COST
Total Estimated Project Cost		$ 27,600,000	
Initial Construction	$ 2,707,000		
Periodic Nourishment	$ 24,893,000		
Allocations to 30 September 1995		$ 4,480,000	
Conference Allowance for FY 1996		$ 0	
Allocation for FY 1996		$ 0	
Allocations through FY 1996		$ 4,480,000	35
Allocation Requested for FY 1997		$ 214,000	37
Programmed Balance to Complete after FY 1997		$ 8,106,000	
Unprogrammed Balance to Complete after FY 1997		0	

JUSTIFICATION: The reach of shoreline immediately north of Indian River Inlet, commonly referred to as the feeder beach, is being damaged by erosion, and State Highway Route 1 is threatened. The project area has also experienced considerable erosion from waves due to hurricanes and northeasters as a result of the lack of adequate protective beaches. The critical length of shoreline north of Indian River Inlet along which erosion threatens Route 1 is extremely important because it provides the only direct roadway between Bethany Beach and the northern beaches. There would be severe negative social and economic impacts if Route 1 were to be cut by a washover. The authorized project would provide tangible benefits by providing beach erosion control measures which in turn reduce annual beach erosion maintenance costs and reduce wave damages from coastal storms. The average annual benefits, are $9,549,200 based on 1 October 1984 price levels of which $9,121,100 are for prevention of erosion damages and $428,100 are for prevention of loss of land.

FISCAL YEAR 1997: The requested funding will be used to provide periodic nourishment through the operation of a sand bypass plant. The funds will be applied as follows:

Periodic Nourishment	$ 183,000
Planning, Engineering, and Design	$ 20,000
Construction Management	$ 11,000
Total	$ 214,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal Sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Bear 35 percent of the costs allocated to periodic nourishment, and bear all costs of operation, maintenance and replacement of shoreline protection features.	$14,800,000	$115,000
Bear 100 percent of operation, maintenance, and replacement for mitigation of shore damages attributable to navigation projects.		195,000
Total non-Federal Costs	$14,800,000	$310,000

STATUS OF LOCAL COOPERATION: A Local Cooperation Agreement was executed in October 1988 with the State of Delaware. The current non-Federal estimated cash contribution of $16,300,000 for programmed work reflects an increase of $6,450,000 from the estimate of $9,850,000 included in the Local Cooperation Agreement, reflecting a decrease of $13,000 for actual contract award amounts and an increase of $6,437,000 for the inclusion of inflation for periodic nourishment costs through the construction period. The non-Federal sponsor has indicated that it is financially capable and willing to contribute the increased non-Federal share. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

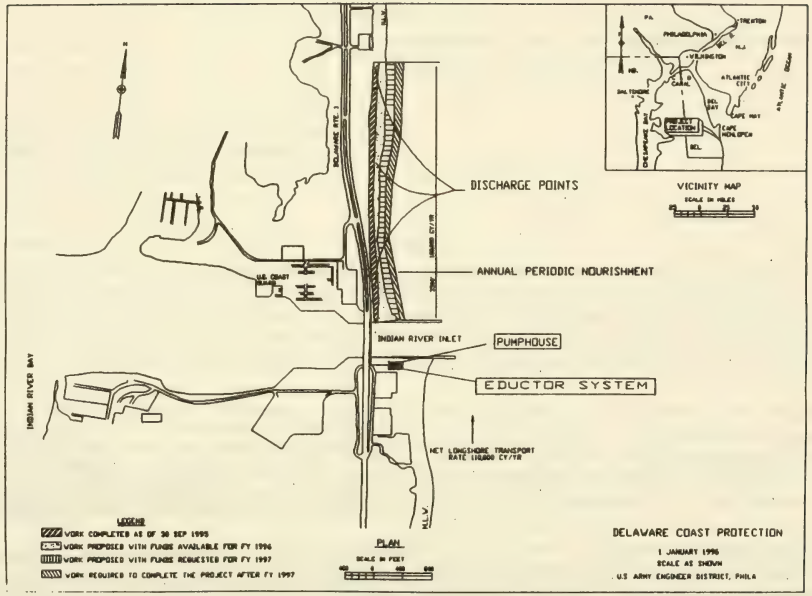
COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $12,800,000 is an increase of $700,000 from the last estimate ($12,100,000) presented to Congress (FY 1995). This change includes the following items:

Item	Incremental Change
Price Escalation on Construction Features	$163,000
Other Adjustments	$537,000
Total	$700,000

600

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement (FEIS) was filed with the Council on Environmental Quality on 1 June 1971. A draft supplement to the FEIS was filed on 18 April 1975. An Environmental Assessment and a Finding of No Significant Impact were completed on 26 November 1984. Listing of Piping Plover (Charadrius Melodus) as an endangered bird species in January 1986 and recent determination by State wildlife officials that the species nests in the project area has necessitated review procedures in accordance with Section 7 of the Endangered Species Act of 1973. A letter from U.S. Fish and Wildlife Service, dated 4 May 1987, expressed that the project operations would cause no impact, provided an operational window is observed. Coordination with the Service is continuing.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1971, and funds to initiate construction were appropriated in FY 1977. Section 869 of the Water Resources Development Act of 1986 deauthorized the unprogrammed portion of the project. The initial construction was cost shared 78.1 percent Federal and 21.9 percent non-Federal. The Federal Government will provide 40.7 percent of the annual cost of operation and maintenance of the plant as its contribution to periodic nourishment of the beach for the remaining authorized periodic nourishment period.



18 MARCH 1996

APPROPRIATION TITLE: Construction General - Beach Erosion Control

PROJECT: Cape May Inlet to Lower Township, New Jersey (Continuing)

LOCATION: The site of the recommended project is located on the Atlantic Coast of New Jersey, approximately 38 miles southwest of Atlantic City. It includes the communities of Cape May City including the United States Coast Guard Training Center and Lower Township in Cape May County.

DESCRIPTION: The plan of improvement consists of construction of two groins and placing beachfill and periodic nourishment which are programmed and the construction of a weir breakwater which is unprogrammed.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because initial construction is complete.

TOTAL BENEFIT-COST RATIO: 1.8 to 1 at 8 5/8 percent.

INITIAL BENEFIT-COST RATIO: 1.4 to 1 at 8 5/8 percent (FY 1986).

BASIS OF BENEFIT-COST RATIO: Cape May Inlet to Lower Township, New Jersey, Benefits Reevaluation Report approved March 1988 at June 1987 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost (COE)			$89,400,000
Programmed Construction		83,320,000	
Initial Construction	5,926,000		
Periodic Nourishment	77,394,000		
Unprogrammed Construction		6,080,000	
Initial Construction	6,080,000		
Periodic Nourishment	0		

STATUS: (1 Jan 1996)	PHYSICAL PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Initial Construction	100	June 1991
Breakwaters	0	Being Determined
Entire Project	10	Being Determined

PHYSICAL DATA:
Beachfill: Elevation +8 Feet (NGVD), 25-180 foot width
Groins:Seven existing and two new groins, 360-786 feet
Weir Breakwater: 2,560 linear feet rubble mound
Periodic Nourishment: 180,000 cubic yards per year

SUMMARIZED FINANCIAL DATA (Continued)

Estimated Federal Cost (USCG)				$48,500,000
Programmed Construction			45,162,000	
Initial Construction		3,458,000		
Periodic Nourishment		41,704,000		
Unprogrammed Construction			3,338,000	
Initial Construction		3,338,000		
Periodic Nourishment		0		
Estimated Non-Federal Cost				10,000,000
Programmed Construction			9,328,000	
Initial Construction		660,000		
Cash Contributions	660,000			
Other Costs	0			
Periodic Nourishment		8,668,000		
Cash Contributions	8,668,000			
Other Costs	0			
Unprogrammed Construction			672,000	
Initial Construction		672,000		
Cash Contributions	672,000			
Other Costs	0			
Total Estimated Programmed Construction			137,810,000	
Initial Construction		10,044,000		
Periodic Nourishment		127,766,000		
Total Estimated Unprogrammed Construction Cost			10,090,000	
Initial Construction		10,090,000		
Periodic Nourishment		0		
Total Estimated Project Cost				$147,900,000
Initial Construction		20,134,000		
Periodic Nourishment		127,766,000		

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED COST
Allocations to 30 September 1995	$11,734,000	
Conference Allowance for FY 1996	$ 0	
Allocation for FY 1996	$ 0	
Allocations through FY 1996	$11,734,000	13
Allocations Requested for FY 1997	$ 1,965,000	15
Programmed Balance to Complete after FY 1997	$69,621,000	
Unprogrammed Balance to Complete after FY 1997	$ 6,080,000 1/	

1/ Completion of the breakwater element is indefinite pending a decision to construct this feature.

JUSTIFICATION: The project area has experienced substantial erosion since the construction of the Cape May Inlet jetties in 1911 by the Federal Government. The jetties interrupt the natural movement of sand along the coast which serves to replenish downdrift beach areas. The City of Cape May and State of New Jersey have spent nearly $4 million since 1945 to combat the resulting erosion. This erosion has left Cape May with little or no protective beach, thus endangering many hotels, small businesses, prominent homes, and a U.S. Coast Guard Training Center. This project would partially restore the beaches of Cape May lost as the direct result of the Cape May Inlet jetties. The potential for future storm damages and maintenance of the seawall would be greatly reduced. The commercial tourism industry would also be enhanced by the provision of sufficient beach area for recreational usage. The project prevented approximately $9 million worth of damages during the 3-5 January 1992 storm, and approximately $500,000 in damages during the 7-8 January 1996 storm.

Federal facilities have existed at the present site since the establishment of a U.S. Navy Section Base in 1918. The U.S. Coast Guard became the sole occupant in 1948 when the Recruit Training Center was transferred from Florida. In addition to being the sole site for Coast Guard recruit training for the entire nation, the site also includes a Group/Air Station complex, a Search and Rescue Station, a small boat maintenance facility, and berths for four cutters ranging from 82 to 210 feet in length. The Commandant of the U.S. Coast Guard (USCG) offered to seek funds to support a cost-shared project with the Corps of Engineers, because of the erosion at the Training Center and the need for a cooperative effort to solve the problem. The average annual benefits are $3,993,000 at June 1987 price levels. These include annual storm damage reduction benefits of $2,977,000, reduced annual maintenance costs of $160,000, and annual recreation benefits of $856,000.

Fiscal Year 1997: The requested amount will be applied as follows:

Periodic Nourishment	$ 1,805,000
Planning, Engineering and Design	60,000
Construction Management	100,000
Total	$ 1,965,000

NON-FEDERAL COST: In accordance with Section 101(c) of the Water Resources Development Act of 1986, costs of constructing measures for mitigation of erosion damages attributable to the Federal navigation project at Cape May Inlet shall be shared in the same proportion as the cost sharing provisions applicable to the original project at Cape May Inlet. The original project was constructed at a Federal cost of approximately $900,000 with a local contribution of $100,000. The distribution of initial costs between the USCG and Cape May City is based on the ratio of benefits accrued by the feeder beach between the two locations. Costs for the remaining features of the recommended project will be allocated to Cape May City. The non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Reimbursement Costs
Make cash contributions equal to 10 percent of the initial construction cost and 10 percent of future periodic nourishment (minus the Coast Guard share).	$10,000,000	
Total Non-Federal Costs	$10,000,000	$ 0

STATUS OF LOCAL COOPERATION: The non-Federal sponsor is the State of New Jersey. A Memorandum of Agreement with the USCG was executed on 4 August 1988. A Local Cooperation Agreement with the State of New Jersey was executed on 31 October 1988. The current non-Federal estimated cash contribution of $9,328,000 for programmed work, including periodic nourishment, reflects an increase of $4,123,500 from the latest estimate of $5,204,500 included in the Local Cooperation Agreement. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting the financial commitment.

COMPARISON OF FEDERAL COST ESTIMATE - The current Federal (Corps of Engineers) cost estimate of $89,400,000 is a decrease of $16,400,000 from the latest estimate ($105,800,000) presented to Congress (FY 1995). This change includes the following items:

ITEM	AMOUNT
Price Escalation on Construction Features	- $16,400,000
Total	- $16,400,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with the Council on Environmental Quality on 8 October 1976 and a Final Supplement was filed with the Environmental Protection Agency on 14 August 1981. Listing of Piping Plover (Charadrius Melodus) as an endangered bird species in January 1986 and the recent determination by State wildlife officials that the species nests in the project area have necessitated informal consultation in accordance with Section 7 of the Endangered Species Act of 1973. A letter from U.S. Fish and Wildlife Service, dated 20 August 1987 determined that the proposed project is not likely to adversely affect the Piping Plover, provided an operational window is observed. Coordination with the Service is continuing.

OTHER INFORMATION: Funds to initiate planning, engineering and design were appropriated in FY 1978. Funds to initiate construction were appropriated in FY 1986. Section 111 of the River and Harbor Act of 1968 is applicable to this proposed project due to the shore damages caused in Cape May City by the Federal navigation project at Cape May Inlet.

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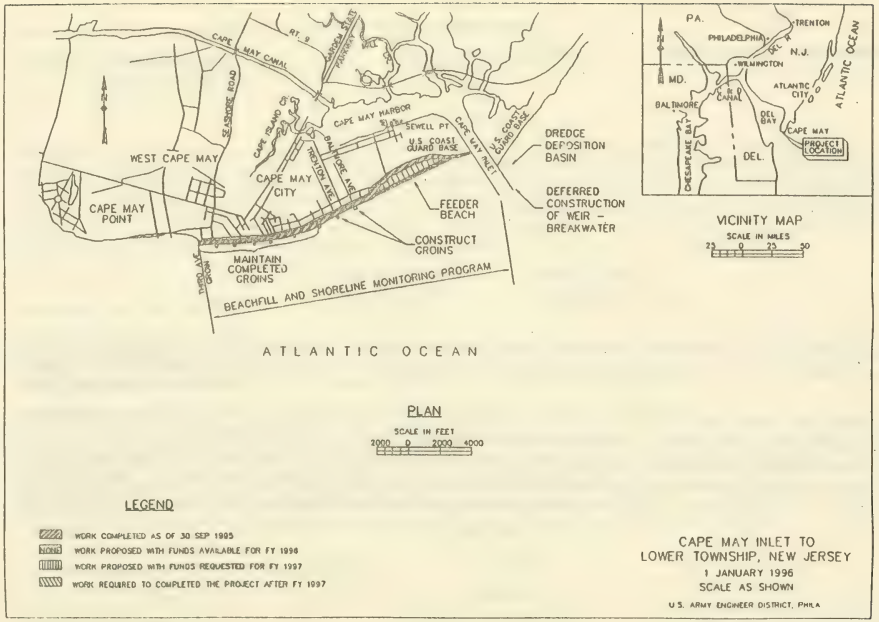

CAPE MAY CANAL
RT. 9
GARDEN STATE PARKWAY
SEASHORE ROAD
CAPE ISLAND CT.
CAPE MAY HARBOR
SEWELL PT.
U.S. COAST GUARD BASE
CAPE MAY INLET
U.S. COAST GUARD BASE
DREDGE DEPOSITION BASIN
WEST CAPE MAY
TRENTON AVE.
BALTIMORE AVE.
CAPE MAY CITY
CAPE MAY POINT
FEEDER BEACH
DEFERRED CONSTRUCTION OF WEIR - BREAKWATER
CONSTRUCT GROINS
MAINTAIN COMPLETED GROINS
BEACHFILL AND SHORELINE MONITORING PROGRAM
ATLANTIC OCEAN
PLAN
SCALE IN FEET
2000 0 2000 4000
PA.
TRENTON
PHILADELPHIA
N.J.
WILMINGTON
MD.
ATLANTIC CITY
ATLANTIC OCEAN
BALTIMORE
C & D CANAL
DEL BAY
CAPE MAY
PROJECT LOCATION
CHESAPEAKE BAY
DEL.
VICINITY MAP
SCALE IN MILES
25 0 25 50
LEGEND
WORK COMPLETED AS OF 30 SEP 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997
WORK REQUIRED TO COMPLETED THE PROJECT AFTER FY 1997
CAPE MAY INLET TO
LOWER TOWNSHIP, NEW JERSEY
1 JANUARY 1996
SCALE AS SHOWN
U.S. ARMY ENGINEER DISTRICT, PHILA

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Great Egg Harbor Inlet And Peck Beach, New Jersey (Continuing)

LOCATION: The project is located in Cape May and Atlantic Counties, New Jersey. Great Egg Harbor Inlet, an unimproved inlet, is about 1.1 miles wide at its narrowest point and provides a tidal connection between the Atlantic Ocean and Great Egg Harbor Bay, the New Jersey Intracoastal Waterway, and Great Egg Harbor River. Peck Beach is occupied in its entirety by the City of Ocean City and extends from Great Egg Harbor Inlet southward to Corson Inlet. The ocean frontage is about eight miles in length.

DESCRIPTION: The recommended plan consists of providing initial beachfill, with subsequent periodic nourishment, with a minimum berm width of 100 feet at an elevation of 8 feet above mean low water. The beachfill extends from Surf Road southwest to 34th Street with a 1000 foot taper south of 34th Street. This plan required the initial placement of roughly 5,943,000 cubic yards of material and will require periodic nourishment of about 1,072,000 cubic yards every three years. The material for the initial construction, and periodic nourishment will be taken from the ebb shoal area located about 5,000 feet offshore of the Great Egg Harbor Inlet. Additionally, the construction of the project required the extension of 38 storm drain pipes. All work is programmed.

AUTHORIZATION: Committee Resolutions on 15 December 1970 under the provision of Section 201 of the River and Harbor and Flood Control Act of 1965 and the Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because initial construction is complete.

TOTAL BENEFIT-COST RATIO: 5.1 to 1 at 8 5/8 percent.

INITIAL BENEFIT-COST RATIO: 2.0 to 1 at 8 5/8 percent (FY 1990).

BASIS OF BENEFIT-COST RATIO: The April 1989 General Design Memorandum approved on 2 May 1990 at September 1988 price levels.

SUMMARIZED FINANCIAL DATA :

Estimated Federal Cost		$343,000,000	
Initial Construction	20,556,000		
Periodic Nourishment	322,444,000		
Estimated non-Federal Cost		$186,000,000	
Initial Construction	$11,295,000		
Cash Contributions	8,387,000		
Other Costs	2,908,000		
Periodic Nourishment	$174,705,000		
Cash Contributions	174,705,000		
Other Costs	0		
Total Estimated Project Cost		$529,000,000	
Initial construction	$ 31,851,000		
Periodic Nourishment	$497,149,000		

STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Initial Beachfill (Phase I)	100	Oct 1992
Initial Beachfill (Phase II)	100	Mar 1993
Entire Project	8	Being Determined

PHYSICAL DATA:
Beachfill:Elevation +8 feet (NGVD); 100-Foot Width
Periodic Nourishment: 1,072,000 cy every three years

		ACCUMULATED PCT OF EST. FED. COST
Allocations to 30 September 1995	$ 27,514,000	
Conference Allowance for FY 1996	$ 0	
Allocation for FY 1996	$ 0	
Allocations through FY 1996	$ 27,514,000	8
Allocation Requested for FY 1997	$ 380,000	8
Programmed Balance to Complete after FY 1997	$315,106,000	
Unprogrammed Balance to Complete after FY 1997	$ 0	

JUSTIFICATION: The instability of Great Egg Harbor Inlet and the shoreline along Peck Beach is a significant problem. Peck Beach, a 9-mile long barrier island along New Jersey's southern coastline contains the entire City of Ocean City. The primary problem at Ocean City is the vulnerability of the beach and the adjacent highly urbanized development to erosion and direct wave attack during major storms. Historical erosion rates for the beaches have averaged five feet per year with severe erosion rates up to 35 feet per year in some locations. In March 1962, a severe storm caused breaching and failing of bulkheads and dunes, and resulted in about $15,000,000 damages of which $4,000,000 was attributed to direct wave attack. It was noted that the area fronting the existing Federal shore protection for Ocean City sustained less damage than other locations. The storm of 28 to 30 March 1984 caused extensive damage to the beach, boardwalk, properties and buildings due to the vulnerable condition of the beaches. More recently, the storms of 30 and 31 October 1991 and 3 to 5 January 1992 caused extensive damages to the beach, boardwalk, properties and buildings. Since initial construction of the project was completed in March 1993, approximately 20 million dollars worth of damages to the area were prevented during the 3-5 January 1992 storm, $4,000,000 in damages to the boardwalk during Hurricane Felix in August 1995, and $1,000,000 during the storm of 7-8 January 1996.

Beach erosion and loss of protective dunes have left Ocean City extremely vulnerable to inundations and direct wave attack from even minor storm events. The instability and shoaling of Great Egg Harbor Inlet also creates navigation difficulties for commercial and recreation craft, particularly those associated with low tides and ground swells and damages due to running aground. Unsafe navigation conditions due to excessive shoals at Great Egg Harbor Inlet required the State of New Jersey to commence emergency dredging operations in October 1989. Average annual benefits follow:

Annual Benefits	Amount
Shoreline Protection (Beach Erosion)	$31,634,800
Navigation	232,500
Total	$31,867,300

FISCAL YEAR 1997: The requested amount will be applied as follows:

Periodic Nourishment	$ 200,000
Planning, Engineering, and Design	165,000
Construction Management	15,000
TOTAL	$ 380,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	$ 2,908,000	$ 36,000
Pay 35 percent of the costs allocated to hurricane and storm damage reduction and all costs of operation and maintenance of shoreline protection structures and outfalls.	$ 183,092,000	0
Total Non-Federal Costs	$ 186,000,000	$ 36,000

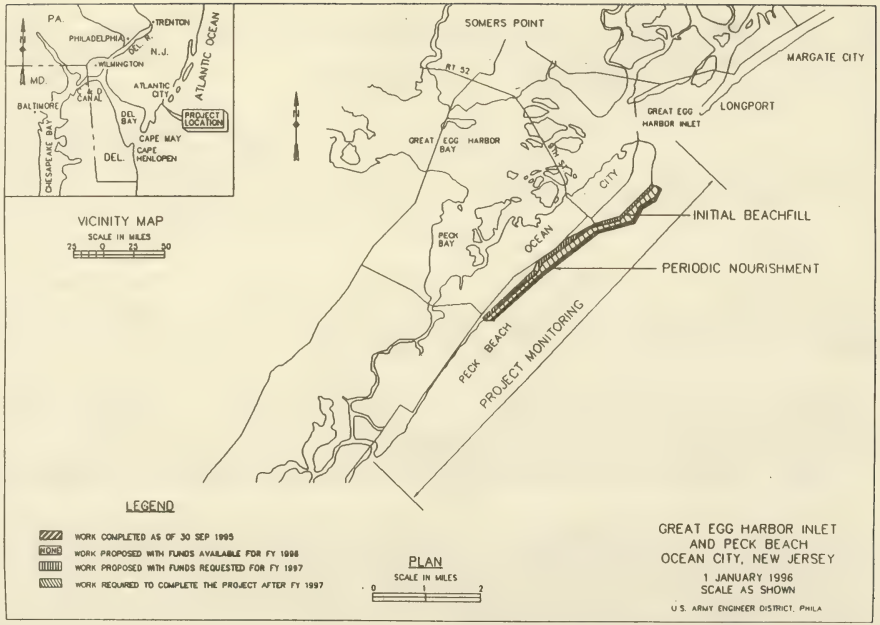
STATUS OF LOCAL COOPERATION: The state of New Jersey is the non-Federal sponsor for the project. In a letter dated 28 September 1990, the state identified a funding source for the non-Federal costs and indicated that it was prepared to proceed with the final negotiations to sign the Local Cooperation Agreement. The state's financing plan was provided by letter dated 28 February 1991. The local cooperation agreement was executed in September 1991.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $343,000,000 is a decrease of $105,000,000 over the latest estimate ($448,000,000) submitted to Congress (FY 1995). This change includes the following items:

Item	Incremental Change
Price Escalation on Construction Features	- $105,000,000
Total	- $105,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 13 November 1970 and a Final Supplemental Environmental Impact Statement (FSEIS) was filed with the Environmental Protection Agency (EPA) in August 1990. Listing of Piping Plover (Charadrius melodus) as an endangered bird species in January 1986 and a determination that the species nests in the project area necessitated informal consultation in accordance with Section 7 of the Endangered Species Act of 1973. A letter from the US Fish and Wildlife Service, dated 9 January 1989 directed the Corps to minimize impacts to the Piping Plover in the project area. A detailed plan to protect the Piping Plover was included in the FSEIS. A Record of Decision (ROD) was signed on 28 January 1991. On 31 August 1990, the Advisory Council on Historic Preservation informed the District that it did not concur with the Finding of No Effect issued by the New Jersey State Historic Preservation Office on 12 April 1989. A process Memorandum of Agreement to address cultural resources concerns relating to project effects on the shipwreck Sindia was executed on 4 April 1991.

OTHER INFORMATION: Funds to initiate Preconstruction Engineering and Design were appropriated in 1973. Funds to initiate construction were appropriated in FY 1990. Initial construction of the project was completed in March 1993.


PA.
TRENTON
PHILADELPHIA
DEL.
N.J.
WILMINGTON
MD.
ATLANTIC CITY
ATLANTIC OCEAN
BALTIMORE
C & D CANAL
DEL BAY
PROJECT LOCATION
CAPE MAY
CAPE HENLOPEN
CHESAPEAKE BAY
DEL.
VICINITY MAP
SCALE IN MILES
25 0 25 50
SOMERS POINT
RT 52
MARGATE CITY
GREAT EGG HARBOR INLET
LONGPORT
GREAT EGG HARBOR BAY
OCEAN CITY
INITIAL BEACHFILL
PERIODIC NOURISHMENT
PECK BAY
PECK BEACH
PROJECT MONITORING
LEGEND
WORK COMPLETED AS OF 30 SEP 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997
PLAN
SCALE IN MILES
0 1 2
GREAT EGG HARBOR INLET
AND PECK BEACH
OCEAN CITY, NEW JERSEY
1 JANUARY 1996
SCALE AS SHOWN
U.S. ARMY ENGINEER DISTRICT, PHILA

APPROPRIATION TITLE: Construction, General - Beach Erosion Control

PROJECT: Sandy Hook to Barnegat Inlet, NJ (Continuing)

LOCATION: The overall project area lies along the Atlantic Ocean shoreline of New Jersey in Monmouth and Ocean Counties between Sandy Hook to the north and Barnegat Inlet to the south. Section I - The Sea Bright to Ocean Township section lies solely within Monmouth County. The Sea Bright to Ocean Township section is the northernmost 12 miles of the project, which includes the following communities: Sea Bright, Monmouth Beach, Long Branch, Deal, Allenhurst, and Ocean Township. Section II - Asbury Park to Manasquan section comprises the southern portion of Monmouth County and is approximately 9 miles long. It includes the following communities: Asbury Park, Ocean Grove, Bradley Beach, Avon-by-the Sea, Belmar, Spring Lake, Sea Girt, State Encampment, and Manasquan.

DESCRIPTION: The recommended plan for Section I, Sea Bright to Ocean Township, includes construction of a 100-foot-wide-berm at an elevation of 10 feet above mean low water with an additional 2-foot-high-storm-berm cap along the entire 12 miles of project shoreline extending from Sea Bright to Ocean Township. The recommended plan for Section II, Asbury Park to Manasquan, includes construction of a berm 100 feet wide at an elevation of 8.4 feet above mean low water. The project identified for Section II is still subject to modification based on the successful completion of the preconstruction engineering and design effort. All work on Sections I and II is programmed. Section III, Point Pleasant to Seaside Park, was deauthorized.

AUTHORIZATION: River and Harbor Act of 3 July 1958 for Sections I and II, Water Resources Development Act of 1986, and the Water Resources Development Act of 1988.

REMAINING BENEFITS-REMAINING COST RATIO: The benefit cost ratio is 1.6 to 1 at 8 1/8 percent.

TOTAL BENEFIT-COST RATIO: The benefits cost ratio is 1.6 to 1 at 8 1/8 percent.

INITIAL BENEFIT-COST RATIO: The benefit cost ratio is 1.5 to 1 at 8 1/8 percent (FY 1985).

BASIS OF BENEFIT-COST RATIO: Benefits are from the analysis contained in General Design Memorandum revised March 1990 at June 1988 price levels. For Section II, Asbury Park to Manasquan Inlet benefits are from the General Design Memorandum dated May 1994 at June 1992 price levels.

SUMMARIZED FINANCIAL DATA:

Estimated Federal Cost			$1,098,000,000						
Initial Construction		150,300,000							
Periodic Nourishment		947,700,000							
Estimated Non-Federal Cost			580,800,000						
Initial Construction		75,800,000							
Cash Contributions	50,600,000								
Other Costs	25,200,000								
Periodic Nourishment		505,000,000							
Cash Contributions	505,000,000								
Other Cost	0								
Total Estimated Project Cost			$1,678,800,000						
Initial Construction		226,100,000							
Periodic Nourishment		1,452,700,000							

Allocations to 30 September 1995	$ 46,096,000		
Conference Allowance for FY 1996	15,700,000		
Allocation for FY 1996	15,798,000	1/	
Allocations through FY 1996	61,894,000		5
Allocation Requested for 1997	24,118,000		7
Programmed Balance to complete after FY 1997	1,011,988,000		
Unprogrammed Balance to complete after FY 1997	0		

1/ Reflects $ 1,302,000 reduction for savings and slippage, and $1,400,000 reprogrammed to the project.

ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
	Sea Bright to Ocean Township	5	being determined
	Asbury Park to Manasquan	0	being determined
	Entire Project	0	being determined

PHYSICAL DATA

Sea Bright to Ocean Township: Beach placement over 12 miles; notching existing groins.
Asbury Park to Manasquan: Beach placement over 9 miles.

616

JUSTIFICATION: Erosion has seriously reduced the width of most beaches in the study area with consequent exposure of shore to storm damage. Because of this erosion of the shore, the area does not provide sufficient recreational beaches for the proper accommodation of the present and prospective tributary population. The State of New Jersey and mayors of affected communities are very concerned over the increased potential for damages to structures due to the eroded condition of the existing beaches. The March 1962 storm caused $40,400,000 in damages (October 1993 price levels) along the twenty five mile stretch of shore from Sandy Hook to Manasquan Inlet. Subsequent emergency restoration works in this reach cost $7,383,000 (October 1988 price levels). In Section I, the restored beach has eroded while the area behind the seawall is more densely developed. Section II suffers from eroding beaches also. The storms of 30 and 31 October 1991, and 3 to 5 January 1992, caused $6,500,000 in damages to shore structures and the small beach seaward of the recently rebuilt state seawall within the project area. The rebuilt seawall was overtopped by the significant ocean waves, and its seaward toe is severely threatened by undercutting and collapse because of the lack of beach. The average annual benefits from erosion control measures are $53,151,000. For Section II, the average annual benefits from erosion control measures are $11,878,000.

FISCAL YEAR 1997: The total program amount requested will be applied as follows:

Section I, Seabright-Ocean Township	
Continue Contract 1b/Seabright	$ 996,000
Continue Contract 2/Long Branch	8,565,000
Planning, Engineering, and Design	510,000
Construction Management	1,090,000
SECTION II, Asbury Park To Manasquan	
Continue Contract I/Southern Reach	$11,512,000
Planning, Engineering, and Design	445,000
Construction Management	1,000,000
Total	$24,118,000

NON-FEDERAL COSTS: Consistent with the Water Resources Development Act of 1988, the non-Federal share of the first $40,000,000 of construction of the Sea Bright to Ocean Township reach consists of monies expended by non-Federal interests for reconstruction of the seawall at Sea Bright and Monmouth Beach, New Jersey. Cost sharing of the project, in excess of the first $40,000,000 increment, is in accordance with Title I of the Water Resources Development Act of 1986. Section I requirements also include lands, easements, rights-of-way and relocations. In Section II, the non-Federal share includes a cash contribution plus lands, easements, rights-of-way, and relocations. The combined Section I and Section II requirements follow:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance and Replacement Costs
Provide all lands, easements, and rights of way, and relocations for Sections I and II.	$ 13,000,000	$ 5,180,000
Of the first $40,000,000 in costs for Section I, non-Federal interests are not required to pay for reconstruction of the seawall at Sea Bright and Monmouth Beach, New Jersey. Thereafter, the non-Federal share is to be 35 percent of project costs in excess of $40,000,000, excluding non-creditable lands, easements and rights of way, and bear all costs of operation and maintenance and replacement of storm damage reduction facilities.	35,400,000	11,960,000
Pay 35 percent of the first costs of Section II, excluding non-creditable lands, easements and rights of way, and bear all costs of operation and maintenance and replacement of storm damage reduction facilities.	15,200,000	5,410,000
Pay 35 percent of the cost of periodic nourishment for Sections I & II.	505,000,000	
Reconstruct Seawall at Sea Bright and Monmouth Beach (Project requirement)	12,200,000	1,100,000
Total Non-Federal Costs	$580,800,000	$23,650,000

The non-Federal sponsor will also be required to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The Local Cooperation Agreement for Section I was signed on 30 July 1992. For Section II, the State of New Jersey Department of Environmental Protection, provided a letter dated 13 May 1994, stating their willingness to execute a Project Cooperation Agreement. The Project Cooperation Agreement is scheduled for execution in March 1996.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $1,098,000,000 is a decrease of $6,900,000 over the latest estimate ($1,104,900,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Price escalation on construction features	- $6,900,000

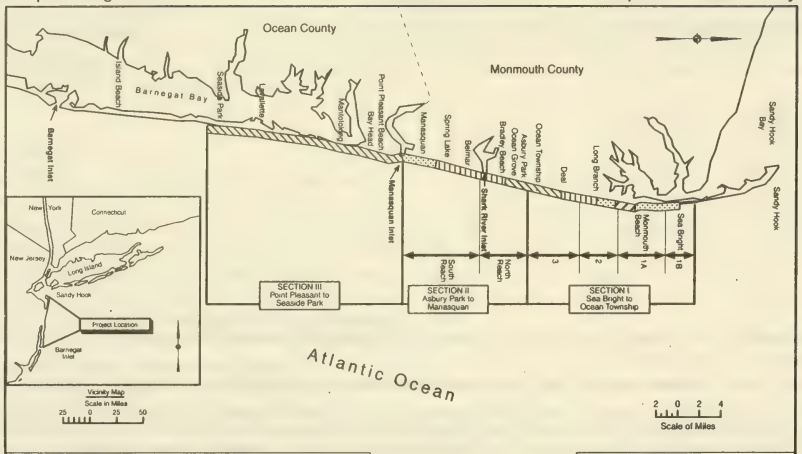
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A final Environmental Impact Statement (EIS) for Section I (Seabright to Ocean Township) was filed with the Environmental Protection Agency (EPA) in June 1990. A Record of Decision was signed on 26 November 1990. The EIS for Section II was filed with EPA in August 1993. A Record of Decision is being prepared.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1985. Project benefits, costs, and financial data reflect Section I and Section II only.

Contract 1a, for the Sea Bright to Monmouth Beach reach, was awarded in January 1994. Contract 1b was awarded in June 1995. Contract 2 is scheduled to be awarded in May 1996.

Corps of Engineers

Department of the Army



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18 MARCH 1996

107

APPROPRIATION TITLE: Construction, General - Beach Erosion Control

PROJECT: East Rockaway Inlet to Rockaway Inlet and Jamaica Bay, NY (Continuing)

LOCATION: The project is located on the south shore of Long Island between East Rockaway Inlet and Rockaway Inlet, some seven miles southeast of the Battery, New York City. The coastal area is a peninsula located entirely within the Borough of Queens, New York City. The project also includes the lands within and surrounding Jamaica Bay. The greater portion of Jamaica Bay lies in the Boroughs of Brooklyn and Queens, New York City, with a small section at the easterly end, known as Head of Bay in Nassau County, New York.

DESCRIPTION: The authorized project work consists of nourishing a 100 to 200 foot wide beach at an elevation of 10 feet above mean low water from Beach 149th Street to 19th Street.

AUTHORIZATION: Water Resources Development Act of 1974 and Water Resources Development Act of 1986 (Section 934).

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because initial construction has been completed.

TOTAL BENEFIT-COST RATIO: Not applicable because initial construction has been completed.

INITIAL BENEFIT-COST RATIO: 1.5 to 1 at 5 1/2 percent (FY 1974).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in June 1993 at December 1992 prices.

SUMMARIZED FINANCIAL DATA:

				ACCUM PCT. OF EST FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost			61,470,000				
Initial Construction		8,813,500					
Periodic Nourishment		52,656,500			Contract No. 6	10	Dec 1996
Contracts 1-5	16,386,500				Contract No. 7	0	being determined
Contracts 6-8	36,270,000				Contract No. 8	0	being determined
Estimated Non-Federal Cost			44,730,000		Entire Project	45	being determined
Initial Construction		8,813,500					
Periodic Nourishment		35,916,500					
Contracts 1-5	16,386,500						
Contracts 6-8	19,518,000						
Other Costs	12,000						

SUMMARIZED FINANCIAL DATA: (Continued)

			ACCUM PCT. OF EST FED COST
Total Estimated Project Cost		106,200,000	
Initial Construction	17,627,000		
Periodic Nourishment	88,561,000		
Other Costs		12,000	
Allocation to 30 September 1995		32,643,000	
Conference Allowance for FY 1996		6,100,000	
Allocation for FY 1996		5,594,000	1/
Allocation through FY 1996		38,237,000	62
Allocation Requested for FY 1997		1,298,000	64
Programmed Balance to Complete after FY 1997		21,935,000	
Unprogrammed Balance to Complete after FY 1997		0	

PHYSICAL DATA

Original Periodic nourishment of the beach between Beach 19th Street and Beach 149th Street, a distance of 4-1/2 miles, to maintain the berm to a width of 100-200 feet at elevation 10 feet above mean low water.

1/ Reflects $506,000 reduction for savings and slippage.

JUSTIFICATION: The Rockaway peninsula is subject to frequent and severe damage from tidal inundation from the ocean and the bay. Along the oceanfront, a serious erosion problem has resulted from storms which reduce beach widths, expose waterfront development to wave attack and cause loss of recreational beach area. The project area is approximately 250 acres of urban shorefront, principally used for recreation purposes. Large sections of the high water beach periodically erodes. Unusually severe storms occurred in September 1921, September 1960, March 1962, and April 1967. The September 1960 storm caused maximum storm tide of record, flooded 3,500 acres of developed land, and resulted in losses exceeding $17,800,000. About 6,000 residences and hundreds of commercial buildings were severely damaged. Boats and waterfront terminal facilities were badly hit. Public utilities and transportation were seriously disrupted. The project area was included in declared disaster areas after the September 1960 and March 1962 storms. Appreciable damage resulted from the April 1967 storm, causing local agencies to place about 250,000 cubic yards of beach fill under emergency conditions at an estimated cost of $400,000. In October 1991 and December 1992, the area experienced flooding and beach erosion. A Presidential disaster was declared for the area following the December 1992 storm. The reevaluation conducted under Section 934 of WRDA 1986 recommended continued Federal participation in three additional

periodic nourishment cycles for the storm damage reduction features of the project. The Section 934 reevaluation report also recommended further analyses to determine whether modifications to the project are warranted to reduce the cost of future periodic nourishment. Based on the reevaluation conducted under Section 934 of WRDA of 1986, the average annual benefits are as follows:

Benefits	Amount
Storm Damage Reduction	$3,400,000
Recreation	6,370,000
Total	$9,770,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Complete contract No 6	$1,200,000
Construction Management	98,000
Total	$ 1,298,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financial concepts reflected in the Water Resources Development Act of 1986, the Non-Federal sponsor must comply with the Requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursement	Annual Operation, Maintenance and Replacement Costs
Pay 35 percent of the costs allocated to storm damage reduction, and 50 percent of the costs allocated to recreation, bear all costs of operation, maintenance, and replacement of storm reduction facilities.	25,200,000 1/ 19,518,000 2/	
Provide lands, easements and rights of way	12,000 1/	
Total Non-Federal Costs	$44,730,000	$0

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

1/ Initial construction and nourishment operations 1 through 5 (50/50 cost sharing).
2/ Includes costs associated with continued nourishment operations, numbers 6-8.

STATUS OF LOCAL COOPERATION: The local cooperating agency for this project is the New York State Department of Environmental Conservation. The project cooperation agreement (PCA) for this project, to extend the beach nourishment period, was executed in May 1995.

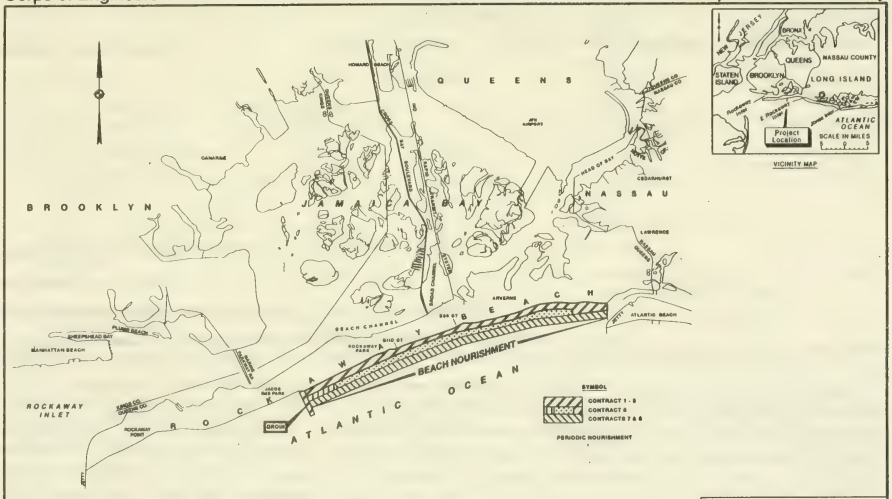
The New York State Department of Environmental Conservation was the sponsor for the initial project in 1975 and for the first five nourishment operations through 1988.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $61,470,000 is a decrease of $230,000 over the latest estimate presented to Congress (FY 1996). This change includes the following item:

Item	Amount
Price escalation on construction features	- $ 230,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 13 May 1974 for the initial project and nourishment. An Environmental Assessment for the extension of beach nourishment was filed with the United States Environmental Protection Agency in April 1994.

OTHER INFORMATION: Funds for initial construction were appropriated in FY 1974. Funds for the original 5 cycles of periodic nourishment were appropriated through FY 1988. Funds to initiate the continuation of periodic nourishment were appropriated in FY 1994. The periodic nourishment period has been extended in accordance with Section 934 of the Water Resources Development Act of 1986. A nourishment cycle (Contract No.6) was initiated in FY 1995.



Work Completed As of 30 September 1995
Work Proposed with Funds Available for FY 1996
Work Proposed with Funds Recommended for FY 1997
Work Required to Complete the Project after 30 September 1997

East Rockaway Inlet to Rockaway Inlet and Jamaica Bay, NY

New York District
North Atlantic Division
1 January 1996

18 MARCH 1996

APPROPRIATION TITLE: Construction, General - Beach Erosion Control

PROJECT: Fire Island Inlet to Montauk Point, New York (Continuing)

LOCATION: The overall project area, extending from Fire Island Inlet easterly to Montauk Point along the Atlantic Coast of Suffolk County. The project is about 83 miles long and comprises about 70 percent of the total ocean frontage of Long Island. Fire Island Inlet is located about 50 miles by water east of the Battery, New York City.

DESCRIPTION: The project provides for beach erosion control and hurricane protection along five reaches of the Atlantic Coast of New York from Fire Island Inlet to Montauk Point. It includes widening the beaches along the developed areas to a minimum width of 100 feet to an elevation of 14 feet above mean sea level and raising dunes to an elevation of 20 feet above mean sea level from Fire Island Inlet to Hither Hills State Park and at Montauk and opposite Lake Montauk Harbor, supplemented by grass planting on the dunes, interior drainage structures, possible construction of 50 groins, and subsequent periodic beach nourishment. An interim project for the Westhampton Beach area is also included, which is to be constructed prior to completion of the ongoing project reformulation effort. This interim project provides for a beach berm extending westwardly from Groin 15 to Moriches Inlet at an elevation of 9.5 feet above mean sea level backed by a dune with a height of +13 feet above msl. It also includes tapering of the existing westernmost two groins (14 and 15) and construction of a new groin between these two groins.

AUTHORIZATION: River and Harbor Act 14 July 1960, modified by the Water Resources Development Act of 1974, the Water Resources Development Act of 1986, and the Water Resources Development Act of 1992.

REMAINING BENEFIT-REMAINING COST RATIO: 2.6 to 1 at 2 5/8 percent.

TOTAL BENEFIT-COST RATIO: 2.6 to 1 at 2 5/8 percent.

INITIAL BENEFIT-COST RATIO: 2.6 to 1 at 2 5/8 percent (FY 1963).

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost			$ 519,400,000
Initial Construction		249,400,000	
Periodic Nourishment		270,000,000	
Estimated Non-Federal Cost			270,600,000
Initial Construction		133,000,000	
Cash Contributions	120,900		
Other Costs	12,100,000		
Periodic Nourishment		137,600,000	
Cash Contributions	63,600,000		
Other Cost	0		
Total Estimated Project Cost			$ 790,000,000
Initial Construction		382,400,000	
Periodic Nourishment		407,600,000	

Allocations to 30 September 1995	$ 21,987,000		
Conference Allowance for FY 1996	10,400,000		
Allocation for FY 1996	9,538,000	1/	
Allocations through FY 1996	31,525,000		6
Allocation Requested for 1997	13,900,000		9
Programmed Balance to Complete after FY 1997	473,975,000		
Balance to Complete after FY 1997	0		

1/ Reflects $862,000 reduction for Savings and Slippage.

	ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
		Reach 2		
		11 groins	100	Oct 1966
		4 groins	100	Nov 1970
		8 groins		
		Westhampton Interim		being determined
		Balance of Reach	0	2/
		Reach 4		
		2 groins	100	Sep 1965
		Dune/Beach Fill-18.4 mi		2/
		Balance		
		Dune/Beach Fill-39.7 mi	0	2/
		Groins-27	0	2/

2/ Schedule is dependent on the outcome of the reformulation effort.

PHYSICAL DATA

Dunes and beach replenishment: 73.5 miles.
Dunes: Raise to elevation 20 feet above MSL.
Beaches: Widen to a minimum width of 100 ft.
Interior drainage structures: 3 gated culverts.
Groins: 52
Periodic Nourishment: 480,000 cubic yards/yr.
Unprogrammed

JUSTIFICATION: Erosion has seriously reduced the width of the study area shoreline with consequent exposure of the shore and the mainland to wave attack and inundation damages. A recurrence of the hurricane tide of record (September 1938) when 45 lives were lost, would cause inundation and wave damage estimated at $652,000,000 (October 1992 price level). The 11 December 1992 storm, in the Westhampton Area (Section 1B of Reach 2), caused the loss of 60 residential structures and two breaches of the barrier island occurred. Breach closure costs were about $6,000,000.

Division: North Atlantic District: New York Fire Island Inlet to Montauk Point, NY

FISCAL YEAR 1997: The total program amount will be applied as follows:

Continue Construction of Westhampton Interim project	$ 10,200,000
Revaluation Report (LRR) for Reach 1	572,000
Reformulation Effort	1,928,000
Construction Management	1,200,000
Total	$ 13,900,000

NON-FEDERAL COSTS: Local interests are required to bear 30 percent of the total project cost including periodic nourishment, for the Westhampton Interim project and 35% of the total project cost for the Reformulation project, which includes the value of lands, easements, and rights-of-way.

Requirements of Local Cooperation:	Payments During Construction and Reimbursements	Annual Operation Maintenance and Replacement Costs
Provide all lands, easements, and rights-of-way, and relocations.	$ 12,100,000	
Pay 30 percent of the first costs of the project for the Westhampton Interim project including creditable lands and easements and rights of way, and bear all costs of operation and maintenance and replacement of storm damage reduction facilities.	120,900,000	
Pay 30 percent of the periodic nourishment cost for the Westhampton Interim Project until 2006 and 35 percent thereafter, and 35 percent for the Reformulation project	127,600,000	
Total Non-Federal Costs	$270,600,000	$ 0

The non-Federal sponsor will also be required to make all required payments concurrently with project construction.

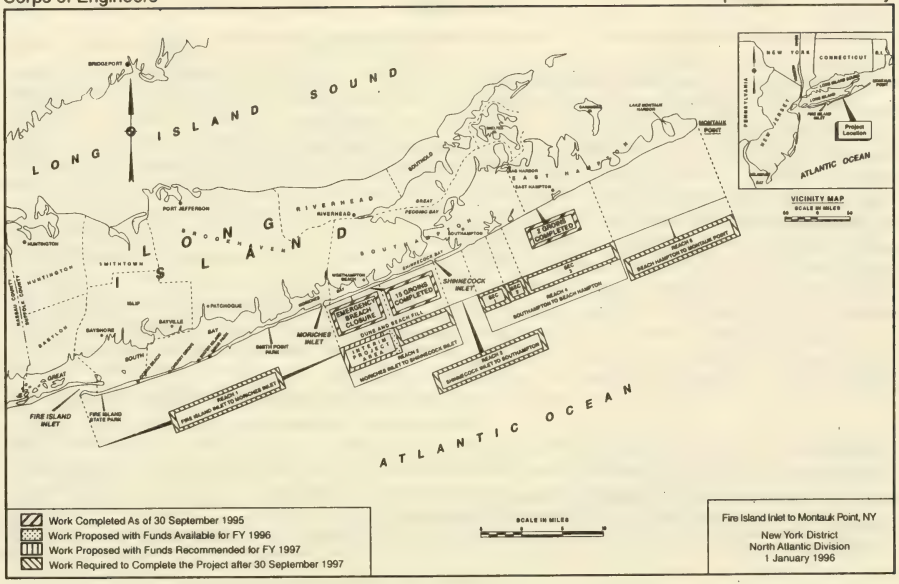
STATUS OF LOCAL COOPERATION: The agency responsible for local cooperation is the New York State Department of Environmental Conservation (NYSDEC). Assurances of local cooperation were executed by the NYSDEC on 14 August 1963 and accepted by the Federal Government on 20 August 1963. A project cooperation agreement for the Westhampton Interim project is scheduled or execution in March 1996.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $519,400,000 is a net decrease of $4,600,000 over the previous estimate of $524,000,000. The change includes the following items:

Item	Amount
Price escalation on Construction Features	- $ 4,600,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (EIS) was filed with the Environmental Protection Agency (USEPA) on 28 January 1978. On 7 March 1978, the Department of the Interior (DOI), supported by other agencies referred the EIS to the Council on Environmental Quality (CEQ) as unacceptable. Subsequent to the strong objections on the project's final environmental impact statement, meetings were held between September 1978 and January 1980 with DOI, USEPA, U.S. Department of Commerce and NYSDEC. Two public scoping meetings were held in October 1979. Subsequently, the Federal agencies agreed to a basis for the reformulation of the Fire Island to Montauk Point project, including a general agreement on the studies necessary to answer the outstanding concerns. An environmental analysis was included in Supplement No. 2 to GDM No. 1 to determine environmentally acceptable measures of beach protection for the critically eroded areas at Westhampton Beach.

OTHER INFORMATION: Initial planning and construction funds were appropriated in FY 1963. The work remaining to be done is completion of construction of Reach 2- Moriches Inlet to Shinnecock Inlet and Reach 4- Southampton to Beach Hampton, initiation of construction of Reach 1- Fire Island Inlet to Moriches Inlet, Reach 3- Shinnecock to Southhampton and Reach 5- Beach Hampton to Montauk, as well as the completion of the reformulation effort. The Corps of Engineers concurred with the request by the State of New York to initially construct 11 groins (Reach 2), and 2 groins (Reach 4) with beach fill to be added as necessary but not sooner than 3 years after groin completion. In recognition of the critical condition of the beaches due to earlier storms, the Corps recommended to the State in June 1967 that the 3 year observation period be waived and that construction of urgent hurricane protection be resumed. The State concurred and requested that work be undertaken on additional groins, replacement of beach fill and dunes in Reach 2, as well as construction of groins, drainage structures and dune fill in Reach 4. Suffolk County, however, did not endorse the placement of beach and dune fills. Continuing negotiations during FY 1969 resulted in agreement on a plan for construction for certain groins, drainage structures, beach fill, and dunes to an interim height of 16 feet in Reaches 2 and 4. In December 1973, the State requested planning for Reach 2 (Section 1b), (Westhampton Beach) and Reach 4 (Georgica Pond), indicating that it would provide funds. Planning resumed and assurances were requested from the State in October 1974. However, strong opposition developed with Suffolk County and the county legislature refusing to provide support. Subsequently erosion of the shoreline downdrift of the groin field at Westhampton Beach accelerated to the point were Dune Road, the only access to the homes in this area, was under water during normal high tide. In December 1992, a breach occurred in the barrier island at Westhampton Beach which was repaired later. An interim plan for the severely eroded Westhampton Beach area was prepared in June 1994, which provides for a lower level of protection than that provided in the original authorization. This interim plan has been designed such that it could be modified based on recommendation of the Reformulation effort. The USEPA and DOI agree in concept to the interim plan, provided that a full environmental assessment and/or environmental impact study is completed, and the reformulation of the overall project is reinstated.


LONG ISLAND SOUND
ATLANTIC OCEAN
BRIDGEPORT
PORT JEFFERSON
HUNTINGTON
SMITHTOWN
ISLIP
BAYSHORE
BAYVILLE
PATCHOGUE
BABYLON
SOUTH OYSTER BAY
GREAT SOUTH BAY
FIRE ISLAND INLET
FIRE ISLAND STATE PARK
SMITH POINT FLING
MORICHES INLET
SAVIANO COCK INLET
RIVERHEAD
RIVERSEAD
SOUTHOLD
GREAT PECONIC BAY
SOUTHAMPTON
EAST HAMPTON
SAGAPONACK
LAKE MONTAUK HARBOR
MONTAUK POINT
NORTHAMPTON BEACH
BEACH 1
BEACH 2
BEACH 3
BEACH 4
BEACH 5
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BEACH 17
BEACH 18
BEACH 19
BEACH 20
BEACH

APPROPRIATION TITLE: Construction, General - Beach Erosion Control

PROJECT: Virginia Beach, Virginia (Reimbursement) (Continuing)

LOCATION: The city of Virginia Beach is located on the Atlantic Ocean south from Cape Henry and east of the city of Norfolk, Virginia.

DESCRIPTION: The project includes periodic nourishment of about 3 1/3 miles of beach between Rudee Inlet and 49th Street with maintenance of the berm to a minimum width of approximately 100 feet at elevation 7 feet above mean low water (5.4 feet NGVD).

AUTHORIZATION: River and Harbor Act of 1962; and Water Resource Development Acts of 1986 and 1990.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because initial construction has been completed.

TOTAL BENEFIT-COST RATIO: Not applicable because initial construction has been completed.

INITIAL BENEFIT-COST RATIO: 4.7 to 1 at 3 1/8 percent (FY 1965).

BASIS OF BENEFIT-COST RATIO: Benefits and costs are from HD 382/87/2 adopted by the 1962 River and Harbor Act at January 1961 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED COST (1 Jan 1996)	STATUS	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		7,461,000				
Initial Construction		1,000,000		Entire Project	75	Feb 1997
Periodic Nourishment		6,461,000				
Estimated Non-Federal Cost		6,489,000				
Initial Construction		1,000,000				
Cash Contributions	1,000,000					
Other Costs	0					
Periodic Nourishment		5,489,000				
Cash Contributions	5,489,000					
Other Costs	0					

PHYSICAL DATA

Periodic nourishment of the beach between Rudee Inlet and 49th Street, a distance of about 3-1/3 miles, to maintain the berm to at a minimum width of approximately 100 feet at elevation 7 ft above mean low water (5.4 feet NGVD).

SUMMARIZED FINANCIAL DATA (Continued)

			ACCUM PCT. OF EST. FED COST
Total Estimated Project Cost		13,950,000	
Initial Construction	2,000,000		
Periodic Nourishment	11,950,000		
Allocation to 30 September 1995		6,126,000	
Conference Allowance for FY 1996		925,000	
Allocation for FY 1996		848,000 1/	
Allocations through FY 1996		6,974,000	86
Allocation Requested for FY 1997		487,000	100
Programmed Balance to Complete after FY 1997		0	
Unprogrammed Balance to Complete after FY 1997		0	

1/ Reflects $77,000 reduction assigned as savings and slippage.

JUSTIFICATION: The periodic nourishment program is a modification of the original project adopted by the 1954 River and Harbor Act, which provided for beach restoration and the deferred construction of a system of groins. Comparative cost studies of groin construction versus periodic nourishment indicate that the latter is the more suitable and economical method for maintaining shore stability, protecting property, and insuring maximum recreation benefits from use of the publicly-owned shores. The beach was restored in 1953 and has been maintained since then by local interests, with Federal participation in the original cycle beginning in 1962 and ending in 1987. Its effectiveness in providing protection from hurricanes and northeast storms was demonstrated in the severe coastal storm of March 1962, when considerable property damages and business losses were averted. Commercial development along the beachfront has enjoyed an unprecedented boom during the past decade due in part to the protection provided by the beach restoration and nourishment program. Current valuation of oceanfront properties substantially exceeds that prevailing prior to project implementation. The average annual benefits, based on October 1991 price levels are as follows:

Annual Benefits	Amount
Reduction in Storm Damage	$5,093,000
Recreation	3,249,000
Total	$8,342,000

FISCAL YEAR 1997: The requested amount of $487,000 will be used to reimburse local interests for the Federal share of the cost of the periodic nourishment program.

NON-FEDERAL COSTS: Local interests are required to furnish all necessary lands, easements, and rights-of-way; maintain the protective and improvement measures during their useful life, as may be required to serve their intended purpose; not permit water pollution that would endanger the health of bathers, and maintain continued public ownership of the shore upon which the amount of Federal participation is based, and its administration for public use only; and contribute 35 percent of the 10-year program of periodic nourishment cost. The total estimated cost of the local cooperation requirements is $6,489,000.

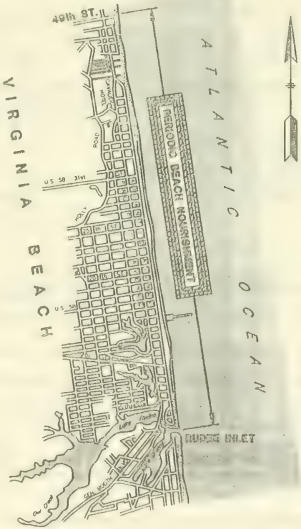
STATUS OF LOCAL COOPERATION: The non-Federal sponsor is the City of Virginia Beach. The original Local Cooperation Agreement (LCA) expired 6 February 1987. Consistent with Section 934 of the Water Resources Development Act of 1986, a new LCA was required. Ten additional years of Federal participation in periodic nourishment cost sharing were approved on 10 March 1988 by the Assistant Secretary of the Army for Civil Works. A Project Cooperation Agreement (PCA) for the extension of periodic nourishment was executed on 9 August 1993. Article VII of the 9 August 1993 PCA states that, "The Government shall not be obligated to budget for appropriations to reimburse the Local Sponsor for, and costs incurred by the Local Sponsor for periodic nourishment after February 6, 1987, and before execution of this agreement. The Government shall reimburse the Local Sponsor for such costs only when specifically directed by Congress in legislation and when appropriations are made available for such purpose."

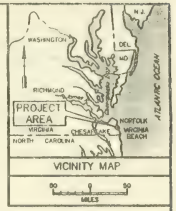
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $7,461,000 is a decrease of $1,100,000 from the latest estimate ($8,561,000) presented to Congress (FY 1996). This change includes the following items.

Item	Amount
Post Contract Award and Other Estimating Adjustments	-$1,100,000
Total	-$1,100,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT AND COMPLIANCE WITH CLEAN WATER ACT: The final Environmental Impact Statement was published in the 1 August 1975 issue of the Federal Register. A Supplemental Information Report appeared in the 25 February 1980 issue of the Federal Register. A Record of Decision (ROD) was signed on 3 November 1993.

OTHER INFORMATION: Funds to initiate the original cycle of periodic nourishment were appropriated in FY 1965. Funds to initiate the reimbursement of the second cycle of periodic nourishment were appropriated in FY 1993.





WORK STATUS

- WORK COMPLETED AS OF 30 SEPTEMBER 1995
- WORK UNDERWAY WITH FUNDS AVAILABLE FOR FY 1996
- WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997

TYPICAL SECTION
ARTIFICIALLY RESTORED BEACH
NOT TO SCALE
ELEVATIONS ABOVE NGVD

WORK INVOLVES PARTICIPATION IN COST OF CONTINUOUS NOURISHMENT

1000 0 1000 2000 3000 4000
SCALE IN FEET

BEACH EROSION CONTROL

VIRGINIA BEACH, VIRGINIA (REIMBURSEMENT)

WORK COMPLETED, IN PROGRESS & PROPOSED

NORFOLK DISTRICT
NORTH ATLANTIC DIVISION
1 JANUARY 1996

18 MARCH 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Molly Ann's Brook at Haledon, Prospect Park and Paterson, New Jersey (continuing)

LOCATION: The project area, which is approximately 12 miles northwest of New York City, is located in Haledon, Prospect Park and Paterson, New Jersey, along Molly Ann's Brook from the mouth below Totowa Avenue in Paterson upstream to Church Street in Haledon.

DESCRIPTION: The recommended plan is a modified channel with a total length of 2.5 miles. The channel will include both trapezoidal channel sections and walled sections. Five bridges will be replaced and one building will be removed. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1976 and Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 1.19 to 1 at 8 3/4 percent.

TOTAL BENEFIT-COST RATIO: 1.13 to 1 at 8 3/4 percent.

INITIAL BENEFIT-COST RATIO: 1.16 to 1 at 8 3/4 percent (FY 1993).

BASIS OF BENEFIT-COST RATIO: Benefits are from the Limited Reevaluation Report dated March 1993 at October 1992 price levels.

PHYSICAL
SUMMARIZED FINANCIAL DATA:

Estimated Federal Cost		$23,500,000
Estimated Non-Federal Cost		10,100,000
Cash Contributions	1,700,000	
Other Costs	8,400,000	
Total Estimated Project Cost		$33,600,000

STATUS: (1 Jan 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Channel	1	Being Determined
Bridges	0	Being Determined
Entire Project	1	Being Determined

PHYSICAL DATA :
Channel: Length of 2.5 miles combining trapezoidal channel sections and walled sections
Bridges: Replacement of five bridges and removal of one building.

Division: North Atlantic District: Philadelphia Molly Ann's Brook, Haledon, Prospect Park and Paterson, NJ

696

SUMMARIZED FINANCIAL DATA: (Cont)

		ACCUM. PCT. OF EST. FED COST
Allocations to 30 September 1995	4,883,000	
Conference Allowance for FY 1996	3,750,000	
Allocation for FY 1996	377,000 1/	
Allocations through FY 1996	5,260,000	22
Allocation Requested for FY 1997	8,150,000	57
Programmed Balance to Complete after FY 1997	10,090,000	
Unprogrammed Balance to Complete after FY 1997	0	

1/ Reflects $311,000 assigned as savings and slippages, $3,062,000 reprogrammed to other projects.

JUSTIFICATION: Major flooding in recent years has adversely affected about 520 residential, commercial and industrial establishments in the 100-year floodplain. The storms of 1968 and 1977 caused estimated damages of $2,100,000 and $12,300,000 respectively, at 1991 price level. The average annual benefits are $3,582,000 (October 1995 Price Level) and at an average annual cost of $3,173,000 (95 PL)

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue Construction	$ 7,735,000
Planning, Engineering and Design	50,000
Construction Management	365,000
TOTAL	$ 8,150,000

637

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

	Payments during Construction and Reimbursement	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way.	$ 2,523,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	5,877,000	
Pay 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	1,700,000	$ 50,000
Total Non-Federal Cost	$10,100,000	$ 50,000

STATUS OF LOCAL COOPERATION: The Project Cooperation Agreement (PCA) was executed on 16 December 1993. The State of New Jersey Department of Environmental Protection, the non-Federal sponsor, is providing their support through the Intermodal Surface Transportation Efficiency Act of 1991 and funds appropriated in their FY 1994 State Capital Budget. They are currently in the process of designing bridges to be modified as part of the project and acquiring the necessary lands, easements, and rights-of-way for the construction of the project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $23,500,000 is an decrease of $100,000 over the latest estimate ($23,600,000) submitted to Congress (FY 1996). This change includes the following item:

Item	Amount
Price Escalation on Construction Features	- $ 100,000
Total	- $ 100,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Record of Decision was signed on 3 November 1988.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1989. Funds to initiate construction were appropriated in FY 1993.

23-577 O - 96 - 21

18 MARCH 1996

APPROPRIATION TITLE: Construction, General - Local Flood Protection Project

PROJECT: Ramapo River at Oakland, New Jersey (Continuing)

LOCATION: The project is located on the Ramapo River in the Borough of Oakland in Bergen County, and Wayne Township and the Borough Pompton Lakes in Passaic County, New Jersey. The project extends from the Pompton Lake Dam upstream to West Oakland Avenue in Oakland.

DESCRIPTION: The plan of improvement has two major features. The first involves the installation of flood control taintor gates on the existing Pompton Lake Dam. The second feature involves channel modification consisting of widening and deepening 5,800 feet of the Ramapo River. Mitigation for environmental impacts is also included in the form of wetland creation. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1986. Congressional reauthorization is required based on the General Design Memorandum approved July 1994.

REMAINING BENEFIT-REMAINING COST RATIO: 1.3 to 1 at 7 5/8 percent.

TOTAL BENEFIT-COST RATIO: 1.3 to 1 at 7 5/8 percent.

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 8 percent.

BASIS OF BENEFIT-COST RATIO: Benefits and costs are from the General Design Memorandum approved July 1994 at October 1993 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$9,025,000		Channels & Canals	0	being determined
Estimated Non-Federal Cost		2,975,000		Flood Diversion Structure	0	being determined
Cash Contributions	2,320,000					
Other Costs	655,000			Entire Project	0	being determined
Total Estimated Project Cost		$12,000,000				

Allocations to 30 September 1995	2,015,000
Conference Allowance for FY 1996	70,000
Allocation for FY 1996	64,000 1/
Allocation through FY 1996	2,079,000
Allocation Requested for FY 1997	250,000
Programmed Balance to Complete after FY 1997	6,696,000
Unprogrammed Balance to Complete after FY 1997	0

PHYSICAL DATA

Channels & Canals: 5800 feet of channel modification along the Ramapo River

Flood Diversion Structure: Installation of taintor gates at the Pompton Lake Dam.

Mitigation: 5 acres of wetlands.

1/ Reflects $6,000 reduction for savings and slippage.

JUSTIFICATION: The project area suffers annual flood damages of $1,100,000 (Oct 1995 price level) without the project. Damages of $200,000 would occur with the project in place. The level of protection is the 40-year flood. The project would also provide protection against larger flood events. The maximum flood of record was the April 1984 flood an approximate 40-year event, and resulted in residential damage of $3,500,000, in 1984. This flood would cause damages estimated at $5,200,000, if it occurred today (Oct 1995 price level). Approximately 300 families were evacuated during the 1984 flood and 20 people were trapped and had to be rescued. Flooding also caused traffic disruption causing many businesses to close. Damaging floods have occurred 11 times in the past 20 years with the most recent floods in 1983, 1984, 1987 and 1993. The project does not support the development of the floodplain directly or indirectly. The project does avoid, where possible, both long and short term environmental impacts. Mitigation includes the construction of 5.0 acres of wetlands in the project area. Average annual benefits, all flood control, are estimated at $1,027,000 at October 1993 price level.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate Construction of Channels and Canals	165,000
Planning, Engineering, and Design	35,000
Construction Management	50,000
Total	$250,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Requirements of Local Cooperation:		
Provide lands, easements, rights of way and borrow and excavated or dredged material disposal areas.	$ 655,000	
Pay 25 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, as determined under Section 103(m) of the Water Resources Development Act of 1986 to reflect the non-Federal sponsor's ability to pay, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	$2,320,000	$ 46,000
Total non-Federal Costs	$2,975,000	$ 46,000

STATUS OF LOCAL COOPERATION: The State of New Jersey, through its Department of Environmental Protection (NJDEP), is the non-Federal sponsor. By letter dated 22 October 1993, NJDEP indicated its commitment to the project. Funds to cover the entire non-Federal share of the project cost have been programmed into the New Jersey State Capital Budget for FY 1995 and FY 1996. The funds will be held in escrow and expended each year as required. NJDEP understands their responsibilities in carrying out the provisions of the PCA and is prepared to enter into such an agreement as documented in their letter of 4 January 1994.

The project is also supported by the Borough of Oakland. Oakland has purchased portions of the real estate necessary for the project. The real estate will be turned over to the State of New Jersey, the non-Federal sponsor, as a share in the project cost.

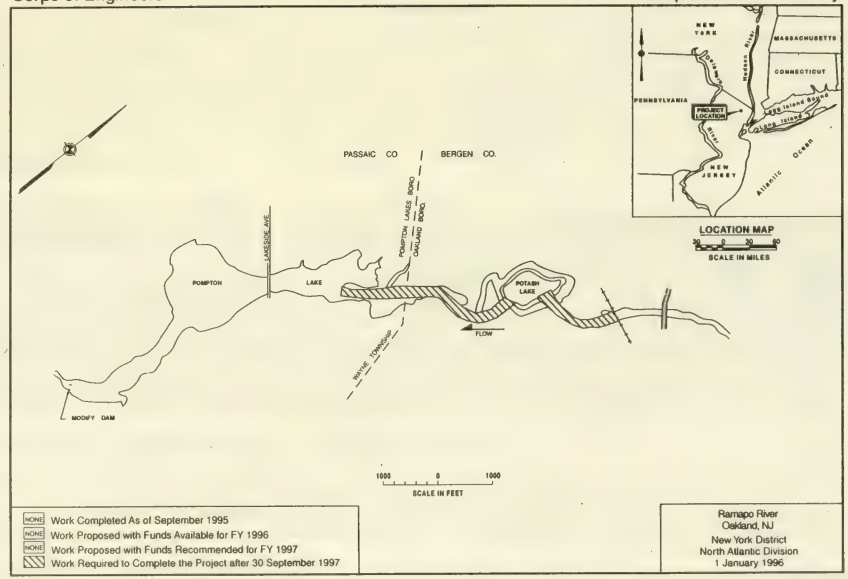
The PCA is scheduled to be executed in FY 1997.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $9,025,000 is the same as the latest estimate submitted to Congress (FY 1996)

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS was filed with EPA on 21 June 1985.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1988 and funds to initiate construction were appropriated in FY 1995. The project cost includes $210,000 for fish and wildlife mitigation and $100,000 and cultural resources preservation. The project is included in the proposed Water Resources Development Act of 1996 for reauthorization at a higher cost cap; delay in reauthorization could delay project implementation.

644



NONE Work Completed As of September 1995
NONE Work Proposed with Funds Available for FY 1996
NONE Work Proposed with Funds Recommended for FY 1997
Work Required to Complete the Project after 30 September 1997

Ramapo River
Oakland, NJ
New York District
North Atlantic Division
1 January 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Lackawanna River, Olyphant, Pennsylvania (Continuing)

LOCATION: Olyphant, Pennsylvania, is located along the Lackawanna River in the northeastern portion of the Commonwealth of Pennsylvania, in Lackawanna County.

DESCRIPTION: The proposed flood control system will provide a 100-year level of protection for the Borough. The project consists of levees, floodwalls, a closure structure, interior drainage facilities, slope protection, and associated cultural mitigation and environmental restoration. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1992.

REMAINING BENEFIT - REMAINING COST RATIO: 1.2 to 1 at 8-1/4 percent.

TOTAL BENEFIT - COST RATIO: 1.1 to 1 at 8-1/4 percent.

INITIAL BENEFIT - COST RATIO: 1.3 to 1 at 8-1/4 percent (FY 1995).

BASIS OF BENEFIT - COST RATIO: Benefits are from the Addendum to the Final Feasibility Report approved in June 1992 at October 1991 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$10,900,000				
Estimated Non-Federal Cost:		4,500,000		Entire Project	0	being determined
Cash Contributions	$ 820,000					
Other Costs	3,680,000					
Total Estimated Project Cost		$15,400,000				

646

SUMMARIZED FINANCIAL DATA (continued)

Allocations to 30 September 1995	1,892,000		
Conference Allowance for FY 1996	240,000		
Allocation for FY 1996	220,000	1/	
Allocations through FY 1996	2,112,000	19	
Allocation Requested for FY 1997	610,000	25	
Programmed Balance to Complete after FY 1997	8,178,000		
Unprogrammed Balance to Complete after FY 1997	0		

PHYSICAL DATA

Earth levees	- 3,800 feet
Concrete floodwall	- 1,400 feet
Drainage control structures	- 7
Gabion slope protection	- 1,500 feet

1/ Reflects reduction of $20,000 assigned for savings and slippage.

JUSTIFICATION: Major floods occurred in the Lackawanna River Basin in 1942, 1955, and most recently in 1985 due to Hurricane Gloria. While the damage from these floods was widespread in the Lackawanna Basin, including many small communities and rural developments, the largest and most concentrated damages occurred in urbanized areas, including the City of Scranton and the Borough of Olyphant. A recurrence today of the Hurricane Gloria flood would result in $14.7 million in damages at Olyphant (October 1995 price level). The Olyphant community comprises a part of the Scranton Metropolitan Area and is important in the commerce and culture of the region. The 1985 flood caused serious property damage to homes and businesses, and untold trauma and hardship to local residents. The community has since recovered to its pre-flood vitality. Flood protection is desired to maintain homes and businesses free from flood damage and promote community improvement. The recommended plan is the National Economic Development Plan which maximizes net economic benefits. It will prevent about 84 percent of the existing $1.44 million in average annual commercial, industrial and residential flood damages estimated to occur in the protected area. The estimated average annual benefits, all flood control, are $2,274,000, based on the Addendum to the Feasibility Report approved in June 1992 at October 1991 price levels.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate construction of dike	182,000
Planning, Engineering, and Design	251,000
Construction Management	177,000
Total	$610,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

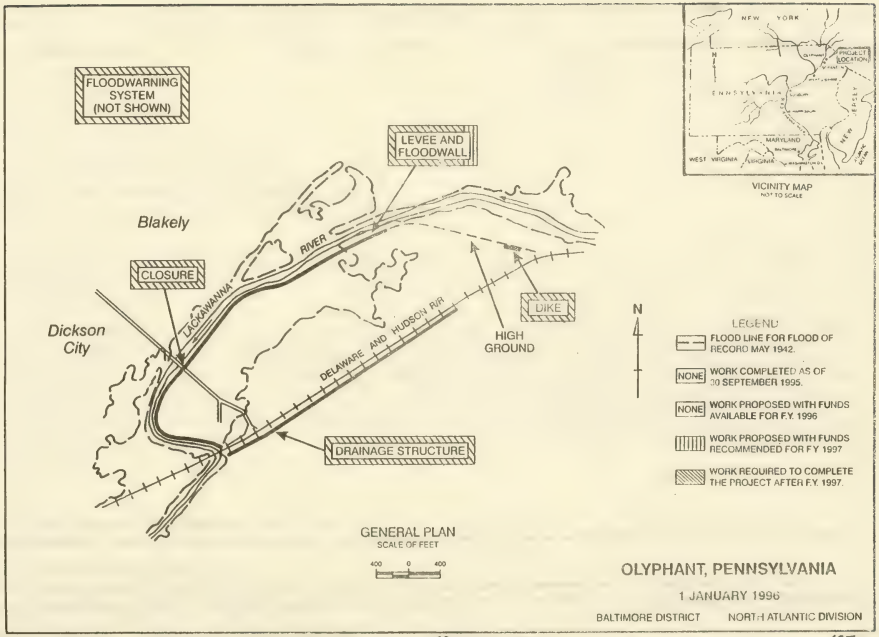
Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements and rights of way.	$2,480,000	
Modify or relocate, utilities, roads, bridges (except railroad bridges) and other facilities where necessary in the construction of the project.	1,200,000	
Pay 5 percent of the cost allocated to flood control and bear all costs of operation, maintenance, and replacement of flood control facilities.	820,000	49,000
Total Non-Federal Costs	$4,500,000	49,000

STATUS OF LOCAL COOPERATION: The local sponsor for the Olyphant local flood control project is the Borough of Olyphant. By letter of 1 December 1991, the Borough indicated its willingness to furnish the required local cooperation and certified its authority, legal capability and financial ability to participate in project cost sharing in accordance with the Water Resources Development Act of 1986. The Borough has maintained an active interest in the project during the design phase. The Commonwealth of Pennsylvania has assured the Borough it is prepared to contribute 50% of the non-Federal share. The sponsor intends to use grants to the maximum extent practicable, and issue general obligation bonds to cover any additional cash requirement. A draft Project Cooperation Agreement has been coordinated between the Corps and the Borough identifying cost-sharing and local cooperation requirements. The Project Cooperation Agreement is scheduled for execution in May 1997.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $10,900,000 is the same as the latest estimate ($10,900,000) submitted to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS was filed with EPA in April 1992. An Environmental Assessment including Finding of No Significant Impact was included in the final Design Memorandum for the first construction element (dike), approved in July 1994.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1992, and funds to initiate construction were appropriated in FY 1995.



18 MARCH 1986

137

650

APROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Lackawanna River, Scranton, Pennsylvania (Continuing)

LOCATION: Scranton, Pennsylvania, is located along the Lackawanna River in the northeastern portion of the Commonwealth of Pennsylvania, in Lackawanna County.

DESCRIPTION: The proposed flood control system will provide a 100-year level of protection for a right bank section of the City known as Park Place. The project consists of levees and floodwalls, and appurtenant project features including improved flood warning system, removal of a railroad bridge, three closure structures, interior drainage facilities, access ramps, slope protection, and associated cultural mitigation. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1992.

REMAINING BENEFIT - REMAINING COST RATIO: 1.4 to 1 at 8-1/4 percent.

TOTAL BENEFIT - COST RATIO: 1.3 to 1 at 8-1/4 percent.

INITIAL BENEFIT - COST RATIO: 1.4 to 1 at 8-1/4 percent (FY 1995).

BASIS OF BENEFIT-COST RATIO: Benefits are from the Addendum to the Final Feasibility Report approved in June 1992 at October 1991 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$15,400,000				
Estimated Non-Federal Cost:		5,100,000		Entire Project	0	being determined
Cash Contributions	$2,345,000					
Other Costs	2,755,000					
Total Estimated Project Cost		$20,500,000				

SUMMARIZED FINANCIAL DATA (continued)

Allocations to 30 September 1995	2,048,000	
Conference Allowance for FY 1996	357,000	
Allocation for FY 1996	327,000 1/	
Allocations through FY 1996	2,375,000	15
Allocation Requested for FY 1997	358,000	18
Programmed Balance to Complete after FY 1997	12,667,000	
Unprogrammed Balance to Complete after FY 1997	0	

PHYSICAL DATA

Earth levees	- 5,800 feet
Concrete floodwall	- 1,700 feet
Drainage control structures	- 17
Gabion slope protection	- 2,700 feet
Closure structures	- 3

1/ Reflects reduction of $30,000 assigned for savings and slippage.

JUSTIFICATION: Major floods occurred in the Lackawanna River Basin in 1942, 1955, and most recently in 1985 due to Hurricane Gloria. While the damage from these floods was widespread in the Lackawanna River Basin, including many small communities and rural developments, the largest and most concentrated damages occurred in urbanized areas such as the City of Scranton. Over 300 residential, and approximately 50 commercial and industrial properties, are subject to flood damage in the Park Place area proposed for protection. A Gloria flood recurrence today would result in $14.3 million in damages in the Park Place area (October 1995 price level). The City of Scranton is the hub of commerce and culture for Northeastern Pennsylvania. The 1985 flood caused serious property damage to homes and businesses, and untold trauma and hardship to local residents. The community has since recovered to its pre-flood vitality. Flood protection is desired to maintain homes and businesses free from flood damage and promote community improvement. The recommended plan is the National Economic Development Plan which maximizes net economic benefits. It will prevent about 82 percent of the existing $2.3 million in average annual commercial, industrial, and residential flood damage estimated to occur in the protected area. The estimated average annual benefits, all flood control, are $2,119,000 based on the Addendum to the Final Feasibility Report approved in June 1992 at October 1991 price levels.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate Construction (Flood Warning System)	$ 40,000
Planning, Engineering, and Design	308,000
Construction Management	10,000
Total	$358,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements and rights of way.	$1,745,000	
Modify or relocate, utilities, roads, bridges (except railroad bridges) and other facilities where necessary in the construction of the project.	1,010,000	
Pay 5 percent of the cost allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent and bear all costs of operation, maintenance, and replacement of flood control facilities.	2,345,000	98,000
Total Non-Federal Costs	$5,100,000	98,000

653

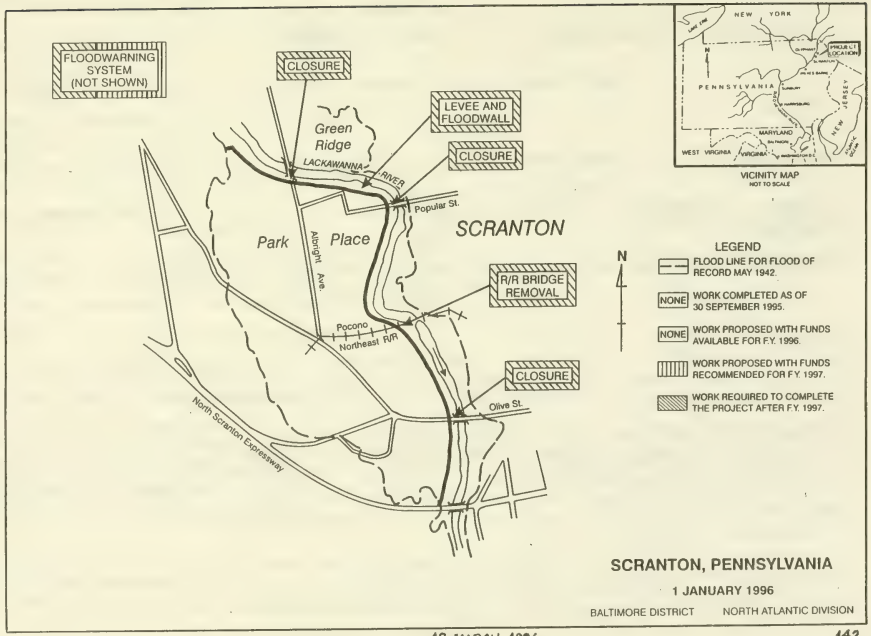
STATUS OF LOCAL COOPERATION: The local sponsor for the Scranton local flood control project is the City of Scranton. By letter of 18 November 1994, the City indicated its agreement with the provisions of the draft Project Cooperation Agreement (PCA). The City previously certified its authority, legal capability, and financial ability to participate in project cost sharing in accordance with the Water Resources Development Act of 1986. The community has been an active participant during the design phase. Their flood warning and response plan was completed in preparation for implementation of the flood warning system. The Commonwealth of Pennsylvania has assured the City that it is prepared to contribute 50% of the non-Federal share. The sponsor intends to finance their expected cash requirement through annual operating budgets, supplemented with Community Development Block Grants. The PCA is scheduled for execution in February 1997.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $15,400,000 is the same as the latest estimate ($15,400,000) submitted to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS for the overall project was filed with EPA in March 1992. An Environmental Assessment including Finding of No Significant Impact was included in the Design Memorandum for the Flood Forecast and Warning System, approved in August 1994.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1992, and funds to initiate construction were appropriated in FY 1995.

654



18 MARCH 1996

142

PROJECT: Wyoming Valley, Pennsylvania (Levee Raising) (Continuing)

LOCATION: Wyoming Valley is located in northeastern Pennsylvania and extends from Duryea on the Lackawanna River southwestward to Nanticoke on the Susquehanna River. The Wyoming Valley flood control projects are located on the Susquehanna River in Luzerne County and are the four contiguous existing Federal flood control projects at Plymouth, Kingston-Edwardsville, Swoyersville-Forty Fort, and Wilkes-Barre and Hanover Township, which together function as a flood control system within the Valley.

DESCRIPTION: The four existing Federal flood control projects in the Wyoming Valley were designed to protect against a flood equal to the March 1936 event which had a peak flow of 232,000 cubic feet per second. Modifications to the existing project would protect against flood flows of 318,500 cubic feet per second that would be caused by a recurrence of Storm Agnes. The proposed modifications include raising existing levees and floodwalls between 3 and 5 feet, modifying closure structures, relocating utilities, and providing some new floodwalls and levees to maintain the integrity of the flood control system. The proposed project also includes a plan to reduce project-related adverse impacts. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 2.4 to 1 at 8-1/4 percent.

TOTAL BENEFIT - COST RATIO: 2.1 to 1 at 8-1/4 percent.

INITIAL BENEFIT - COST RATIO: 2.8 to 1 at 8-1/4 percent (FY 1995).

BASIS OF BENEFIT - COST RATIO: Benefits are from the final Phase II General Design Memorandum approved February 1996 at January 1993 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$100,000,000				
Estimated Non-Federal Cost:		36,000,000		Entire Project	0	being determined
Cash Contributions	$23,880,000 1/					
Other Costs	12,120,000					
Total Estimated Project Cost		$136,000,000 1/				

1/ Includes $2,200,000 for a project betterment involving an expanded parking garage

SUMMARIZED FINANCIAL DATA (continued)

Allocations to 30 September 1995	13,095,000	
Conference Allowance for FY 1996	4,300,000	
Allocation for FY 1996	2,343,000	2/
Allocations through FY 1996	15,438,000	15
Allocation Requested for FY 1997	14,063,000	29
Programmed Balance to Complete after FY 1997	70,499,000	
Unprogrammed Balance to Complete after FY 1997	0	

2/ Reflects reduction of $357,000 assigned for savings and slippage and $1,600,000 reprogrammed from the project.

PHYSICAL DATA

Swoyersville-Forty Fort

Completed Work	Raising Work
Levees - Earthfill: 16,970 ft.	Levees - Earthfill: 16,500 ft. x 3-5 ft.
Floodwall - Steel sheetpile: 2,490 ft.	Floodwall - Steel sheetpile: 4,000 ft. x 3-5 ft.
Channel - 3,900 ft.	

Plymouth

Completed Work	Raising Work
Levees - Earthfill: 8,700 ft.	Levees - 8,600 ft. x 2-4 ft.
Channel - 2,670 ft.	Floodwall - Concrete: 200 ft. x 2-4 ft. Steel sheetpile: 200 ft. x 2-4 ft. Earth: 500 ft. x 2-4 ft.
Pump Stations - 2	Pump Station Modification- 2

Kingston-Edwardsville

Completed Work	Raising Work
Levees - Earthfill: 18,430 ft.	Levees - Earthfill: 17,300 ft. x 3-5 ft.
Conduit - 16.5 ft. x 6,660 ft.	Floodwall - Concrete: 500 ft. x 3-5 ft. Earth: 500 ft. x 3-5 ft.
Channel - 3,640 ft.	Closures - 3 new
Pump Stations - 3	Pump Station Modifications - 3

Wilkes-Barre and Hanover Township

Completed Work	Raising Work
Levees - Earthfill: 27,860 ft.	Levees - Earthfill: 20,600 ft. x 3-5 ft.
Floodwall - Concrete: 160 ft.	Floodwall - Concrete: 500 ft. x 3-5 ft. Sheetpile 4,300 ft. x 3-5 ft. Earth: 600 ft. x 3-5 ft.
Pump Stations - 5 stormwater 8 sanitary	Closures - 3 new & 1 modified
Channel - 1,000 ft.	Pump Station Modification - 13

JUSTIFICATION: The four existing local protection projects which comprise the Wyoming Valley system were constructed between 1935 and 1976 and provide protection for an area of 5,160 acres and a population of 225,000. Over the past 200 years at least 32 floods have been recorded which exceeded a stage of 25 feet at Wilkes-Barre compared to the flood stage of 22 feet. The discharge of 345,000 cubic feet per second during June 1972 (Storm Agnes) without the now completed Cowanesque and Tioga-Hammond Lakes projects in operation overtopped the protection and resulted in the greatest flood of record with damages of $730,000,000. A recurrence of Storm Agnes would result in damages of about $2 billion (October 1995 price level). In January 1996, a combination of rainfall and snowmelt resulted in a flood stage of about 34 feet at Wilkes-Barre, PA. Although the existing system prevented flood damages of nearly $500 million, residual damages were estimated at about $6 million in the Wyoming Valley area. The average annual benefits amount to $27,243,000 essentially all for flood control, based on the final Phase II General Design Memorandum approved February 1996 at January 1993 price levels.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate construction of Woodward pump station	1,000,000
Complete construction of Exeter levee	474,000
Continue construction of Swoyersville-Forty Fort levee	7,000,000
Initiate construction of Kingston-Edwardsville levee	2,444,000
Measures to reduce adverse impacts	903,000
Planning, Engineering and Design	200,000
Construction Management	2,042,000
Total	$14,063,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements and rights of way.	4,190,000	

NON-FEDERAL COSTS: (continued)

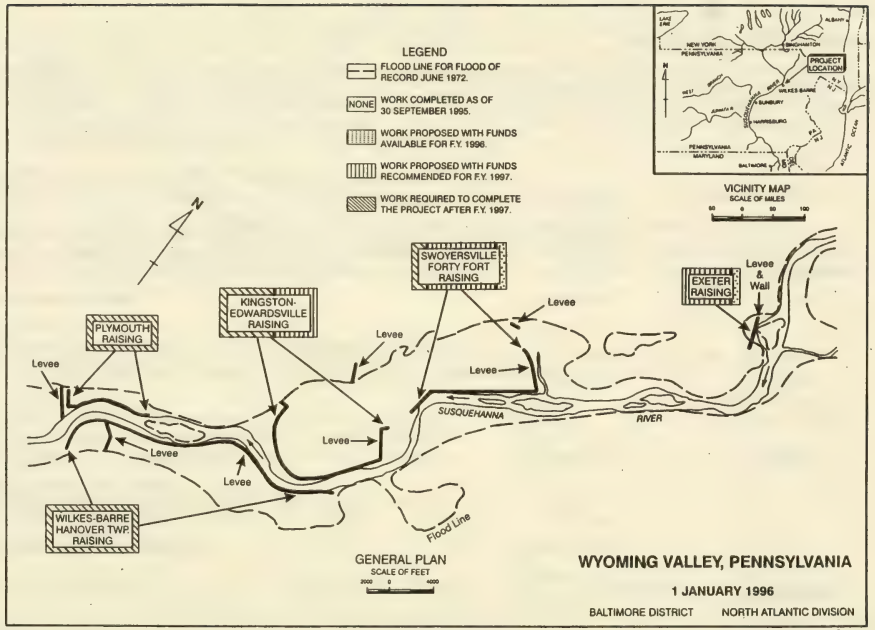
Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Modify or relocate, utilities, roads, bridges (except railroad bridges) and other facilities where necessary in the construction of the project.	7,930,000	
Pay 17 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent and bear all costs of operation, maintenance and replacement of flood control facilities.	22,580,000	145,000
Pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, repair, rehabilitation and replacement of recreation facilities.	1,300,000	32,000
Total Non-Federal Costs	$36,000,000	$177,000

STATUS OF LOCAL COOPERATION: The non-Federal sponsor is Luzerne County. The Pennsylvania Department of Environmental Resources has committed to provide 50 percent of the non-Federal share of project costs. Letters of intent to provide the required local cooperation requirements were furnished by Luzerne County (19 January 1995) and the Commonwealth of Pennsylvania (30 December 1994). A Project Cooperation Agreement is scheduled for execution in April 1996.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $100,000,000 is the same as the latest estimate ($100,000,000) submitted to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A Supplemental Environmental Impact Statement is included in the final General Design Memorandum approved February 1996.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1984 and funds to initiate construction were appropriated in FY 1995. Luzerne County has advised the Corps of the desire to form a Flood Control Authority and a five county Mitigation Board for implementing/administering the project and mitigation plan.



18 MARCH 1996

147

660

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: James R. Olin Flood Control Project, Virginia (Continuing)

LOCATION: The project is located in the City of Buena Vista, Virginia, along the east bank of the Maury River, in Rockbridge County.

DESCRIPTION: The project will provide a system of floodwalls and levees on the left bank and channel modifications to provide flood protection against a flood equal to the August 1969 event which is the maximum flood of recent record. The programmed portion of the project (lower element) consists of a combination levee/floodwall with controlled channelized flow of interior drainage and channel refinement to the Maury River. The unprogrammed portion of the project (upper element) consists of a concrete ringwall around the Georgia Bonded Fibers plant.

AUTHORIZATION: Water Resources Development Act of 1990.

REMAINING BENEFIT-REMAINING COST RATIO: 4.8 to 1 at 8 3/4 percent.

TOTAL BENEFIT-COST RATIO: 2.1 to 1 at 8 3/4 percent.

INITIAL BENEFIT-COST RATIO: 1.2 to 1 at 8 3/4 percent (FY 1993).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation presented in the Design Memorandum dated May 1993 and approved in August 1993 at October 1992 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost			34,500,000	Lower Element	41	Being Determined
Programmed Construction		27,000,000		Upper Element	0	Being Determined
Unprogrammed Construction		7,500,000		Entire Project	32	Being Determined
Estimated Non-Federal Cost			11,500,000			
Programmed Construction		9,000,000				
Cash Contributions	4,600,000					
Other Costs	4,400,000					

SUMMARIZED FINANCIAL DATA (Continued)

Estimated Non-Federal Cost				
Unprogrammed Construction		2,500,000		
Cash Contributions	2,230,000			
Other Cost	270,000			
Total Estimated Programmed Construction Cost			36,000,000	
Total Estimated Unprogrammed Construction Cost			10,000,000	
Total Estimated Project Cost			46,000,000	
Allocations to 30 September 1995			9,456,000	
Conference Allowance for FY 1996			7,400,000	
Allocation for FY 1996			6,786,000	1/
Allocations through FY 1996			16,242,000	61
Allocation Requested for FY 1997			6,800,000	87
Programmed Balance to Complete after FY 1997			3,958,000	
Unprogrammed Balance to Complete after FY 1997			7,500,000	

PHYSICAL DATA

Lower Element:
Earth levees, 11,000 feet long; concrete T-Wall, 800 feet long; associated interior drainage including a canal consisting of 2 segments, 18 feet wide by 1,800 feet long and 27 feet wide by 4,000 feet long; channel refinements, 200 foot bottom for 3,700 feet; 3 railroad and street closures; and street and railroad modifications including construction of a highway bridge, 38 feet wide by 70 feet long. Average heights are 16 feet and 19 feet for the levees and floodwall, respectively.

Upper Element (Unprogrammed):
Concrete ringwall, 2,270 feet long; associated interior drainage; 3 railroad and street closures; and street and railroad modifications. The ringwall would range from 37 to 50 feet in height.

1/ Reflects $614,000 reduction assigned as savings and slippage.

JUSTIFICATION: The Maury River drains an area of about 840 square miles in Virginia and empties into the James River. The Buena Vista flood plain (340 year flood frequency) encompasses about 570 acres of mostly urban development on the left bank of the Maury River. Flooding problems are severe at Buena Vista with major storms occurring in 1936, 1969, and 1985. A recurrence of the August 1969 storm, the maximum flood of record, would cause damages of approximately $61.0 million to Buena Vista based on 1992 prices. Average annual benefits for the programmed portion of the project amount to $4,601,000, all for flood control, based upon the May 1993 design memorandum at October 1992 prices.

FISCAL YEAR 1997: The requested amount of $6,800,000 will be applied as follows:

Continue Construction	$5,740,000
Planning, Engineering, and Design	400,000
Construction Management	660,000
Total	$6,800,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Lower Element:		
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	2,000,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), railroads, and other facilities, where necessary for the construction of the project.	2,400,000	
Pay 12.8 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	4,600,000	120,000
Subtotal Non-Federal Costs, Lower Element	$ 9,000,000	$120,000

NON-FEDERAL COST (Continued)

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Upper Element (Unprogrammed):		
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	140,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), railroads, and other facilities, where necessary for the construction of the project.	130,000	
Pay 22.3 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	2,230,000	25,000
Subtotal Non-Federal Costs, Upper Element	2,500,000	25,000
Total Non-Federal Costs, Total Project	$11,500,000	$145,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The City of Buena Vista, Virginia, is the non-Federal project sponsor. The Project Cooperation Agreement for the programmed portion of the project was executed on 17 February 1994. The non-Federal sponsor is providing its share of project costs through issuance of general obligation bonds, establishment of a flood protection fund, and by receipt of appropriations from the Commonwealth of Virginia for half of the required non-Federal share. Future annual operation, maintenance, repair, rehabilitation and replacement costs will be funded through an existing food and lodging tax.

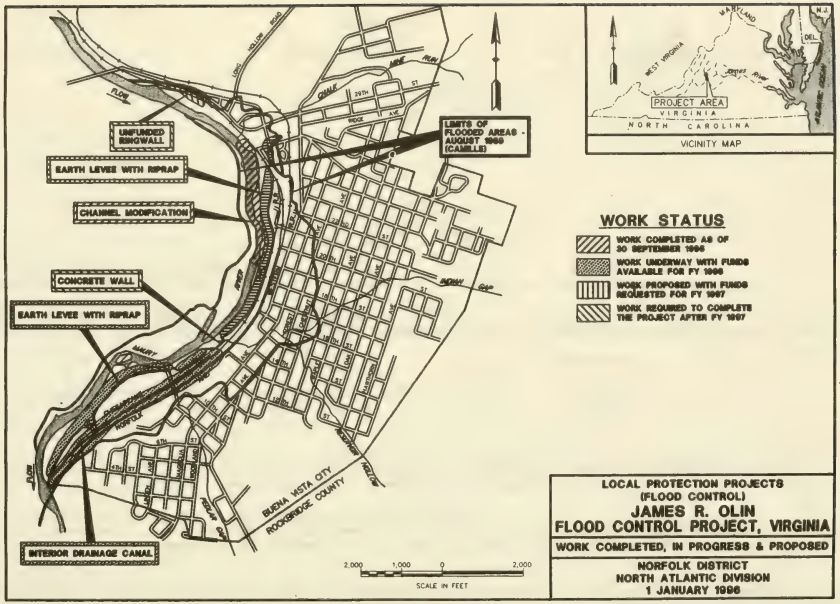
The current non-Federal cost estimate for programmed work of $9,000,000, which includes a cash contribution of $4,600,000, is a decrease of $1,450,000 from the non-Federal cost estimate of $10,450,000 noted in the Project Cooperation Agreement, which included a cash contribution of $4,890,000.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $34,500,000, is a decrease of $4,000,000 from the latest estimate ($38,500,000) presented to Congress (FY 1996). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	+$ 350,000
Post Contract Award and Other Estimating Adjustments	-$4,350,000
Total	-$4,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment/Finding of No Significant Impact (EIA/FONSI) was issued in March 1990 and a supplement was issued in May 1992.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1990 and funds to initiate construction were appropriated in FY 1993.



999

18 MARCH 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Moorefield, West Virginia (Continuing)

LOCATION: The Town of Moorefield is located in northeastern West Virginia at the confluence of the South Branch Potomac River and the South Fork of the South Branch Potomac River in Hardy County.

DESCRIPTION: The project includes a flood warning system, approximately 21,600 feet of earth levee, 1,360 linear feet of floodwall, highway bridge replacement and replacement of one span of the railroad bridge, environmental mitigation and appurtenant project features such as ramps, closures, riprap, relocations, and ponding areas for local drainage. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1990.

REMAINING BENEFIT-REMAINING COST RATIO: 1.5 to 1 at 8 1/2 percent.

TOTAL BENEFIT-COST RATIO: 1.11 to 1 at 8 1/2 percent.

INITIAL BENEFIT-COST RATIO: 1.11 to 1 at 8 1/2 percent (FY 1994).

BASIS OF BENEFIT-COST RATIO: Benefits are from the Limited Reevaluation Report dated June 1992 at May 1992 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$18,000,000				
Estimated Non-Federal Cost:		5,200,000		Entire Project	0	being determined
Cash Contributions	0					
Other Costs	5,200,000					
Total Estimated Project Cost		$23,200,000				

SUMMARIZED FINANCIAL DATA (CONT'D)

Allocations to 30 September 1995	3,487,000		
Conference Allowance for FY 1996	4,200,000		
Allocation for FY 1996	5,452,000	1/	
Allocations through FY 1996	8,939,000		50
Allocation Requested for FY 1997	6,385,000		85
Programmed Balance to Complete after FY 1997	2,676,000		
Unprogrammed Balance to Complete after FY 1997	0		

PHYSICAL DATA

Earth levees	- 21,600 feet
Concrete floodwall	- 1,360 feet
Closure structures	- 2
Raising of U.S. Route 220 highway	
Railroad bridge	- Replace 80-foot span

1/ Reflects reduction of $348,000 assigned for savings and $1,600,000 reprogrammed to the project.

JUSTIFICATION: The Town of Moorefield lies at the confluence of the South Fork and South Branch Potomac River. Minor flooding begins to occur at about the once in 20-year event. The town has experienced major floods on several occasions (March 1936, June 1949, and November 1985). Typically, major floods in the area have very high velocities and rise and fall rapidly, with short warning times due to the steep terrain in the upstream watershed. The largest recorded flood occurred in November 1985, causing three deaths and damages of about $29,100,000. Three feet of water covered the business district, the industrial zone, and the schools in North Moorefield; and up to seven feet of water affected all structures (mainly residential) in South Moorefield. As a result, approximately 135 structures were condemned. Damages occurred to homes, businesses, schools, industries, roads, railroads, bridges, and utilities. If a similar flood were to occur today, damages are estimated at $77,850,000 (October 1995 price level). The estimated average annual benefits for the proposed project, all flood control, are estimated at $2,016,000 (May 1992 price level).

FISCAL YEAR 1997: The requested amount will be applied as follows:

Relocations	$ 260,000
Continue levee construction	5,426,000
Planning, Engineering, and Design	99,000
Construction Management	600,000
Total	$6,385,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the Energy and Water Development Appropriations Act of 1993, and the Interior Appropriations Act of 1993, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation Maintenance and Replacement Costs
Provide lands, easements and rights-of-way.	$2,000,000	
Modify or relocate, utilities, roads, bridges (except railroad bridges) and other facilities where necessary in the construction of the project.	3,200,000	
Pay 5 percent of the cost allocated to flood control and bear all costs of operation, maintenance and replacement of flood control facilities (the cash contribution is deemed satisfied in consideration of the transfer of Grandview State Park to the Federal Government).	0	84,000
Total Non-Federal Costs	$5,200,000	84 000

STATUS OF LOCAL COOPERATION: The local assurer for the flood protection project is the Town of Moorefield. The Town has stated their intent to be the non-Federal sponsor and is willing and able to participate in project cost sharing in accordance with the Water Resources Development Act of 1986. The Town has provided their written commitment to enter into a Project Cooperation Agreement (PCA) by letter dated 21 November 1989. Both Hardy County and the State of West Virginia have also indicated their strong support for the project. A PCA was executed in May 1994.

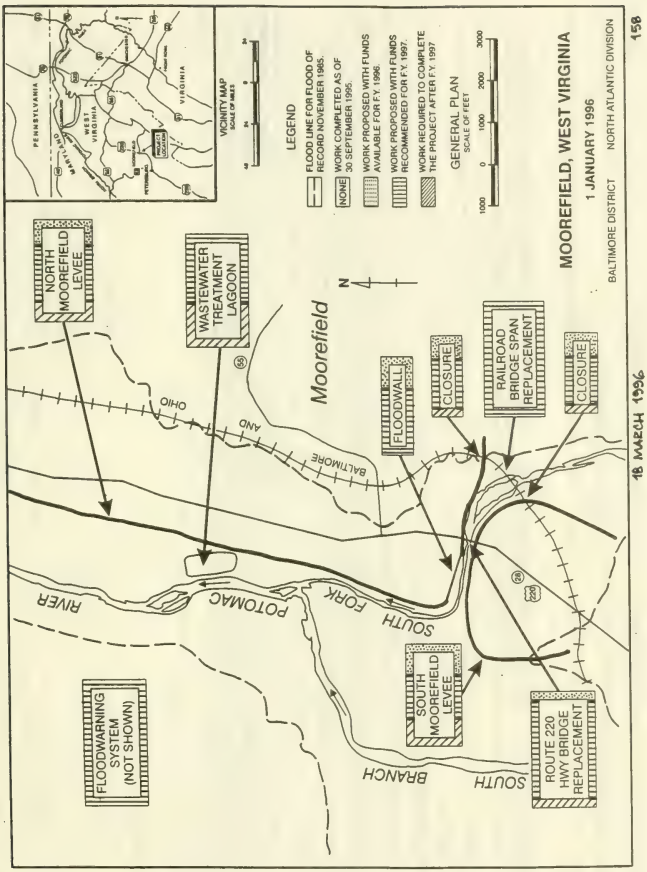
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $18,000,000 is an increase of $1,200,000 over the latest estimate ($16,800,000) submitted to Congress (FY 1996). This change includes the following items:

ITEM	AMOUNT
Price escalation on construction features	$ - 95,000
Other estimating adjustments	1,295,000
Total	$1,200,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS was filed with EPA in June 1990. An environmental assessment including Finding of No Significant Impact was included in the Design Memorandum completed in September 1993.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1990, and funds to initiate construction were appropriated in FY 1994. The project is included in the proposed Water Resources Development Act of 1996 for reauthorization at a higher cost cap; delay in reauthorization could delay project implementation.

In accordance with the Energy and Water Development Appropriation Act of 1993, the cash contribution required under Section 103(a)(1)(A) of the Water Resources Development Act of 1986 for the Moorefield and Petersburg, West Virginia, projects is deemed satisfied in consideration of the transfer of Grandview State Park to the Federal Government. In accordance with the Interior Appropriations Act of 1993, any balance of the park's appraised value will be applied to the local requirement for lands, easements, and rights-of-way on these two projects required by Section 103(a)(1)(B) of the 1986 Act. The value of the park has been appraised by the National Park Service and does not exceed the value of the cash contribution that would otherwise be required by Section 103(a)(1)(A) of the Water Resources Development Act of 1986 for the two projects. Consequently, the local sponsor's share of project costs has been modified to reduce the cash contribution to zero.


PENNSYLVANIA
MARYLAND
WEST VIRGINIA
VIRGINIA
MOORE-FIELD
VICINITY MAP
LEGEND
FLOOD LINE FOR FLOOD OF RECORD NOVEMBER 1985.
(NONE) WORK COMPLETED AS OF 30 SEPTEMBER 1995.
WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1996.
WORK PROPOSED WITH FUNDS RECOMMENDED FOR FY 1997.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997
GENERAL PLAN
SCALE OF FEET
1000 0 1000 2000 3000
MOOREFIELD, WEST VIRGINIA
1 JANUARY 1996
BALTIMORE DISTRICT NORTH ATLANTIC DIVISION
158
18 MARCH 1996
NORTH MOOREFIELD LEVEE
WASTEWATER TREATMENT LAGOON
Moorefield
N
FLOODWALL
CLOSURE
RAILROAD BRIDGE SPAN REPLACEMENT
CLOSURE
OHIO
AND
BALTIMORE
RIVER
POTOMAC
SOUTH FORK
SOUTH BRANCH
FLOODWARNING SYSTEM (NOT SHOWN)
SOUTH MOOREFIELD LEVEE
ROUTE 220 HWY BRIDGE REPLACEMENT

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Petersburg, West Virginia (Continuing)

LOCATION: The City of Petersburg is located along the South Branch of the Potomac River in eastern Grant County, West Virginia.

DESCRIPTION: The project consists of earth levee, floodwall, channel improvements, Route 220 bridge modifications, environmental mitigation, and appurtenant project features such as ramps, a closure, slope protection, relocations, ponding areas for interior drainage, and flood warning system improvements. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1990, modified by the Energy and Water Development Appropriations Act, 1996.

REMAINING BENEFIT-REMAINING COST RATIO: 2.6 to 1 at 8 3/4 percent.

TOTAL BENEFIT-COST RATIO: 1.2 to 1 at 8 3/4 percent.

INITIAL BENEFIT-COST RATIO: 1.4 to 1 at 8 3/4 percent (FY 1993).

BASIS OF BENEFIT-COST RATIO: Benefits are from the Post Authorization Change Report dated May 1995 at October 1995 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$17,900,000				
Estimated Non-Federal Cost:		6,675,000		Entire Project	30	Aug 1997
Cash Contributions	$ 0					
Other Costs	6,675,000					
Total Estimated Project Cost		$24,575,000				

SUMMARIZED FINANCIAL DATA (continued)

Allocations to 30 September 1995	6,139,000	
Conference Allowance for FY 1996	7,900,000	
Allocation for FY 1996	7,245,000 1/	
Allocations through FY 1996	13,384,000	75
Allocation Requested for FY 1997	4,516,000	100
Programmed Balance to Complete after FY 1997	0	
Unprogrammed Balance to Complete after FY 1997	0	

PHYSICAL DATA

Earth levees	- 18,460 feet
Concrete floodwall	- 900 feet
Channel excavation	- 61,000 cubic yards
Raising of U.S. Route 220 highway bridge	- 410-foot span

1/ Reflects reduction of $655,000 assigned for savings and slippage.

JUSTIFICATION: The City of Petersburg has experienced extensive flood damages on several occasions in past years. Typically, floods in the area have very high velocities and rise and fall rapidly with short warning times due to the steep terrain in the upstream watershed. Significant floods occurred in March 1936, June 1949 and November 1985. The flood in March 1936 resulted in the inundation of South Petersburg and portions of Petersburg south of the Mill Race and along the right bank of Lunice Creek. During the 1936 flood, part of the bulwarks failed causing damage within Petersburg. Estimated damages for a recurrence of this flood in the South Branch area would be about $22,000,000 with the current level of development. Prior to November 1985, the most damaging flood in the Petersburg area occurred in June 1949. This flood resulted in the inundation of portions of Petersburg and all of South Petersburg with water depths of five feet. Estimated damages with a recurrence of this flood would be $27,260,000 (October 1995 price level). The city was devastated by flooding in November 1985 which represented the flood of record for the South Branch Potomac River at Petersburg. The flood caused damages estimated at $28,200,000 and demolished approximately 20 homes in the Petersburg area. Average flood depths of about seven feet inundated all buildings south of the river and affected about 30 percent of the buildings north of the river. The estimated average annual benefits for the project, all flood control, are $3,115,000 (October 1995 price level).

FISCAL YEAR 1997: The requested amount will be applied as follows:

Complete Relocations	$ 100,000
Continue Levee Construction	3,341,000
Planning, Engineering, and Design	189,000
Construction Management	886,000
Total	$4,516,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the Energy and Water Development Appropriations Act of 1993, and the Interior Appropriations Act of 1993, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements and rights-of-way.	$ 0	
Modify or relocate, utilities, roads, bridges (except railroad bridges) and other facilities where necessary in the construction of the project.	6,675,000	
Pay 5 percent of the cost allocated to flood control and bear all costs of operation, maintenance and replacement of flood control facilities (the cash contribution is deemed satisfied in consideration of the transfer of Grandview State Park to the Federal Government).	0	$96,000
Total Non-Federal Costs	$6,675,000	$96,000

STATUS OF LOCAL COOPERATION: The local assurer for the flood protection project is Grant County, West Virginia. The County stated their intent to be the non-Federal sponsor and is willing and able to participate in project cost sharing in accordance with the Water Resources Development Act of 1986. Grant County provided their written commitment to enter into a Project Cooperation Agreement (PCA) by letter dated 8 December 1989. By letter dated 11 June 1991, the County stated that its local funding has been identified towards meeting an accelerated construction schedule. Both the City of Petersburg and the State of West Virginia have indicated their strong support for the project. The PCA was signed in July 1993.

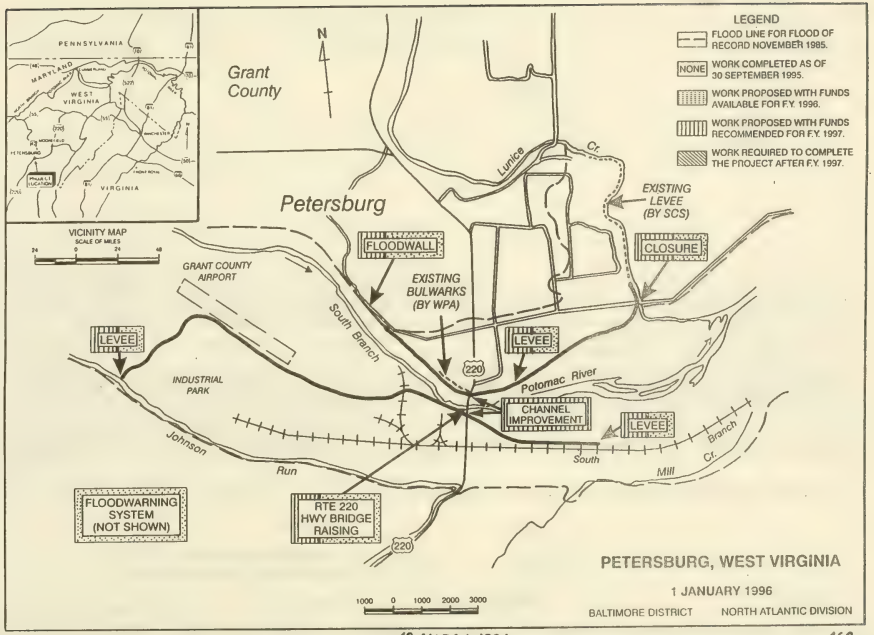
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $17,900,000 is an increase of $200,000 over the latest estimate ($17,700,000) submitted to Congress (FY 1996). This change includes the following items:

ITEM	AMOUNT
Price escalation on construction features	$ -144,000
Other estimating adjustments	344,000
Total	$ 200,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An environmental assessment including Finding Of No Significant Impact was included in the Design Memorandum completed in February 1993.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1990, and funds to initiate construction were appropriated in FY 1993.

In accordance with the Energy and Water Development Appropriation Act of 1993, the cash contribution required under Section 103(a)(1)(A) of the Water Resources Development Act of 1986 for the Moorefield and Petersburg, West Virginia, projects is deemed satisfied in consideration of the transfer of Grandview State Park to the Federal Government. In accordance with the Interior Appropriations Act of 1993, any balance of the park's appraised value will be applied to the local requirement for lands, easements, and rights-of-way on these two projects required by Section 103(a)(1)(B) of the 1986 Act. The value of the park has been appraised by the National Park Service and does not exceed the value of the cash contribution that would otherwise be required by Section 103(a)(1)(A) of the Water Resources Development Act of 1986 for the two projects. Consequently, the local sponsor's share of project costs has been modified to reduce the cash contribution to zero.


LEGEND
FLOOD LINE FOR FLOOD OF RECORD NOVEMBER 1985.
NONE WORK COMPLETED AS OF 30 SEPTEMBER 1995.
WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 1996.
WORK PROPOSED WITH FUNDS RECOMMENDED FOR F.Y. 1997.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 1997.
N
Grant County
Petersburg
Lunice Cr.
EXISTING LEVEE (BY SCS)
CLOSURE
FLOODWALL
EXISTING BULWARKS (BY WPA)
GRANT COUNTY AIRPORT
South Branch
LEVEE
LEVEE
220
Potomac River
INDUSTRIAL PARK
CHANNEL IMPROVEMENT
LEVEE
Johnson Run
South Branch Mill Cr.
FLOODWARNING SYSTEM (NOT SHOWN)
RTE 220 HWY BRIDGE RAISING
220
PETERSBURG, WEST VIRGINIA
1 JANUARY 1996
BALTIMORE DISTRICT
NORTH ATLANTIC DIVISION
1000 0 1000 2000 3000
VICINITY MAP
SCALE OF MILES
24 0 24 48
PENNSYLVANIA
MARYLAND
WEST VIRGINIA
VIRGINIA
PETERSBURG
MOOREFIELD
MONETA
LYNCHBURG
HIGH ROYAL
PROJECT LOCATION

APPROPRIATION TITLE: Construction, General - Environmental Restoration

PROJECT: Chesapeake Bay Oyster Recovery, Maryland (Continuing)

LOCATION: The Chesapeake Bay in Maryland.

DESCRIPTION: The project will contribute to multi-agency and private efforts to restore oyster populations in the Maryland portion of the Chesapeake Bay. Project elements currently being formulated include: construct or rehabilitate oyster reefs to create disease-free oyster habitat; construct hatchery and seed bar facilities for production and collection of disease-free oyster seed or "spat"; plant disease-free spat in locations which best foster oyster reproduction and health; and monitor the performance of the project to increase oyster populations.

AUTHORIZATION: Section 704 (b) of the Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable.

TOTAL BENEFIT-COST RATIO: Not applicable.

INITIAL BENEFIT-COST RATIO: Not applicable.

BASIS OF BENEFIT-COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA			ACCUM PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$2,500,000				
Estimated Non-Federal Cost:		834,000		Entire Project	0	being determined
Cash Contributions	$834,000					
Other Costs	0					
Total Estimated Project Cost		$3,334,000				

SUMMARIZED FINANCIAL DATA: (CONT'D)

Allocations to 30 September 1995	421,000		
Conference Allowance for FY 1996	230,000		
Allocation for FY 1996	211,000	1/	
Allocations through FY 1996	632,000		25
Allocation Requested for FY 1997	206,000		38
Programmed Balance to Complete after FY 1997	1,662,000		
Unprogrammed Balance to Complete after FY 1997	0		

PHYSICAL DATA

New oyster bars constructed	64 acres
Existing oyster bars rehabilitated	80 acres
Oyster seed production	
Hatcheries upgraded	- 2 Hatcheries
Eyed Larvae transplanted	- 18 million
Seed bars created	- 80 acres
Spat transplanted	- 240,000 Bushels

1/ Reflects reduction of $19,000 assigned for savings and slippage.

JUSTIFICATION: The Maryland oyster population has declined dramatically since the turn of the century, largely due to the parasitic diseases, MSX and Dermo. These diseases kill oysters before they reach maturity and marketable size. As a result, there has been a collapse in the Maryland oyster industry, with the 1995 harvest equating to less than one percent of the harvest 100 years ago. More significantly, the reduced oyster population has adversely impacted water quality in the Bay, due to the smaller size and numbers of oyster beds to filter and clean the water. Activities to restore physical oyster habitat and maintain water quality are critical to the economic and environmental survival of the Chesapeake Bay. Restoration of oyster populations in the bay is a high priority of the State of Maryland and the Chesapeake Bay Program and both have 5-year action plans for oyster restoration. The project will help implement recommendations in the Maryland Oyster Roundtable Action Plan which fall within the Corps' environmental restoration mission.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Fish and Wildlife	$ 98,000
Planning, Engineering, and Design	45,000
Construction Management	63,000
Total	$206,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation Maintenance and Replacement Costs
Pay 25 percent of the cost allocated to fish & wildlife restoration and bear all costs of operation, maintenance, repair, rehabilitation and replacement of fish and wildlife facilities.	$834,000	1/
Total Non-Federal Costs	$834,000	

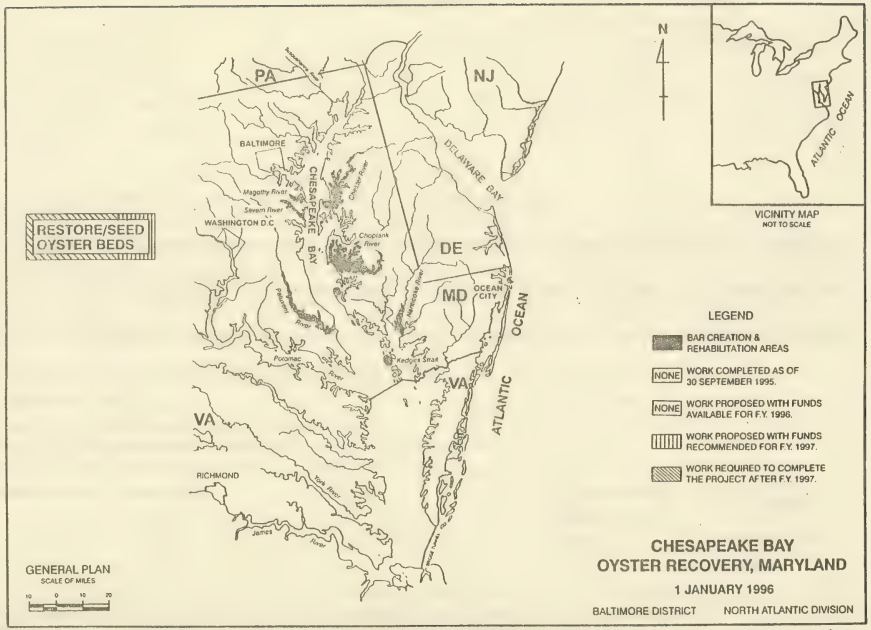
1/ To be determined when plan formulation and design are complete.

STATUS OF LOCAL COOPERATION: The State of Maryland will be the non-Federal project sponsor. The PCA is scheduled for execution in July 1996.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal estimate of $2,500,000 is the same as the latest estimate ($2,500,000) submitted to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: Environmental compliance documentation will be accomplished as required by law.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1995.



18 MARCH 1996

167

680

APPROPRIATION TITLE: Construction, General - Environmental Restoration

PROJECT: Poplar Island, Maryland (Continuing)

LOCATION: Poplar Island is a group of islands located in the upper middle Chesapeake Bay approximately 34 nautical miles southeast of the Port of Baltimore.

DESCRIPTION: The project consists of reconstructing Poplar Island to its approximate size in 1847 (1,100 acres), using an estimated 38 million cubic yards of uncontaminated dredged material from maintenance dredging of the southern approach channels of the Baltimore Harbor and Channels navigation project. This will be accomplished through the construction of approximately 35,000 feet of dikes to contain the dredged material necessary to form the low and high marsh wetlands and upland habitat and to protect the 1,100-acre dredged material placement area from the severe wave activity in this region of the Chesapeake Bay.

AUTHORIZATION: The project is budgeted for construction under proposed legislation.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable

TOTAL BENEFIT-COST RATIO: Not applicable

INITIAL BENEFIT-COST RATIO: Not applicable

BASIS OF BENEFIT-COST RATIO: Not applicable

SUMMARIZED FINANCIAL DATA			ACCUM PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$287,000,000				
Estimated Non-Federal Cost:		96,000,000		Entire Project	0	being determined
Cash Contributions	$95,914,000					
Other Costs	86,000					
Total Estimated Project Cost		$383,000,000				

SUMMARIZED FINANCIAL DATA:(cont'd)

Allocations to 30 September 1995	$ 1,351,000	
Conference Allowance for FY 1996	$ 0	
Allocation for FY 1996	$ 210,000	
Allocations through FY 1996	$ 1,561,000	
Allocation Requested for FY 1997	$ 22,000,000	8
Programmed Balance to Complete after FY 1997	$263,439,000	
Unprogrammed balance to Complete after FY 1997	0	

PHYSICAL DATA

Earth dikes	35,000 feet
Wetlands created	550 acres
Uplands created	550 acres
Submerged aquatic veget.	1,000 acres

JUSTIFICATION: Valuable island habitat at Poplar Island is being lost through erosion. Islands are preferentially selected by many fish and wildlife species as nesting/production areas. The lack of human disturbance and fewer predators make islands more productive. Poplar Island is currently eroding at more than 13 feet per year and will disappear by the turn of the century. The plan to restore the island using uncontaminated dredged material from maintenance dredging of the Baltimore Harbor and Channels navigation project has been developed through the cooperative efforts of many state and Federal agencies, as well as private organizations. The Port of Baltimore is rapidly reaching a point where available placement area capacity will be insufficient to meet the port's dredging needs. A disruption in the constant maintenance that is required to keep the Port of Baltimore operational would result in significant adverse effects to both the local and national economy.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Seawalls and Bulkheads	$21,596,000
Planning, Engineering, and Design	88,000
Construction Management	316,000
Total	$22,000,000

682

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation Maintenance and Replacement Costs
Provide lands, easements and rights-of-way	$ 86,000	
Pay 25 percent of the cost allocated to fish & wildlife restoration and bear all costs of operation, maintenance, repair, rehabilitation and replacement of fish and wildlife facilities.	95,914,000	1/
Total Non-Federal Costs	$96,000,000	

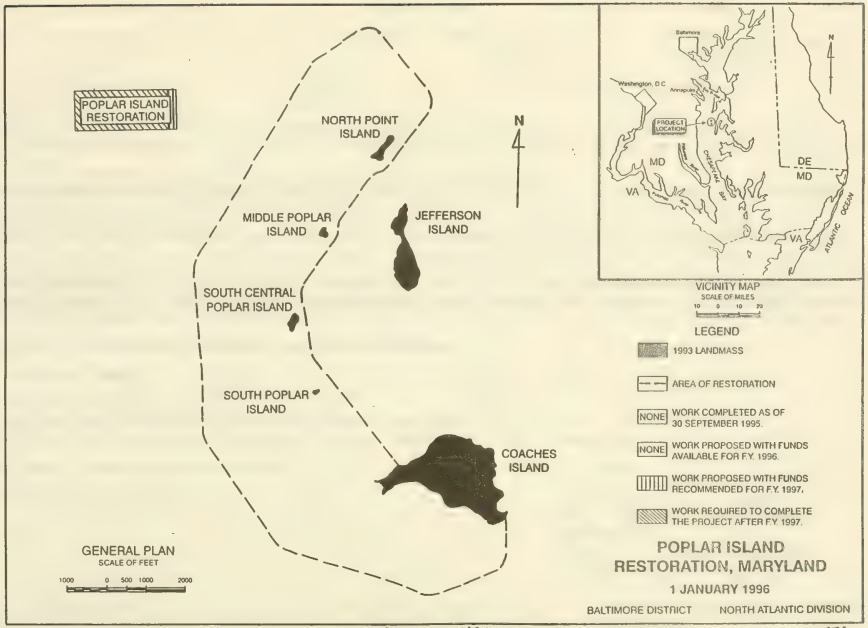
1/ To be determined when plan formulation and design are complete.

STATUS OF LOCAL COOPERATION: The State of Maryland is the non-Federal sponsor. A letter from the State of Maryland indicating its intent to be the non-Federal sponsor and participate in project cost sharing in accordance with the Water Resources Development Act of 1986 is expected in March 1996. The Project Cooperation Agreement is scheduled for execution by October 1996.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $287,000,000 is the initial cost estimate being presented to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The EIS has been distributed for review and will be finalized in February 1996, under the authority of Section 204 of the Water Resources Development Act of 1992.

OTHER INFORMATION: Planning for this project was accomplished under the authority of Section 204 of the Water Resources Development Act of 1992. The feasibility study was initiated in September 1994 and was completed in February 1996.



18 MARCH 1996

171

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation

a. Channels and Harbors

The budget estimate of $ 103,227,000 provides for essential operation and maintenance work on 72 channel and harbor projects named in the list which follows. The work to be accomplished under this activity consists of operating and maintaining the coastal navigation channels, harbors and anchorages by means of dredging, constructing bulkheads and spoil disposal areas, snagging and repairing channel stabilization works, navigation structures, and harbor jetties, all as authorized in the laws pertaining to river and harbor projects.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for change in Operations from FY 96 to FY 97 (10% +/-). 2. Major Maintenance items budgeted in FY 97 (Threshold $ 500,000).
Delaware			
Chesapeake & Delaware Canal - St. George's Bridge Replacement	14,000,000 (0) (14,000,000)	14,000,000 (0) (14,000,000)	1. None. 2. None.
Indian River Inlet and Bay	406,000 (0) (406,000)	100,000 (100,000) (0)	1. Scour study, FY 97. 2. None.
IWW, from Delaware River to Chesapeake Bay , DE & MD	17,005,000 (3,332,000) (13,673,000)	11,602,000 (3,337,000) (8,265,000)	1. None. 2. Dredging; paint and repair St George's Bridge

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. **Channels and Harbors** (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	 FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Delaware (Cont'd)			
IWW, between Rehoboth Bay and Delaware Bay	113,000 (39,000) (74,000)	42,000 (42,000) (0)	1. None. 2. None.
Murderkill River	40,000 (0) (40,000)	265,000 (0) (265,000)	1. None. 2. None.
Waterway, Indian River Inlet to Rehoboth Bay	0 (0) (0)	315,000 (0) (315,000)	1. None. 2. None.
Wilmington Harbor	2,382,000 (153,000) (2,229,000)	4,810,000 (155,000) (4,655,000)	1. Dredged material management plan, FY 1996. 2. Dredging; remove/replace sheetpiles-South jetty.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

1. **Navigation** (Cont'd)

a. **Channels and Harbors** (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
District of Columbia			
Potomac River below Washington	75,000 (0) (75,000)	62,000 (0) (62,000)	1. None. 2. None.
Washington Harbor	34,000 (0) (34,000)	34,000 (0) (34,000)	1. None. 2. None.
Maryland			
Baltimore Harbor and Channels	11,888,600 (1,235,500) (10,653,100)	10,711,000 (1,259,000) (9,452,000)	1. None. 2. Variation in dredging requirements.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

1. Navigation (Cont'd)

a. Channels and Harbors (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Maryland (Cont'd)			
Crisfield Harbor	37,000 (0) (37,000)	478,000 (0) (478,000)	1. None. 2. None.
Fishing Bay	67,000 (0) (67,000)	695,000 (0) 695,000)	1. None. 2. Dredging in FY 97.
Honga River & Tar Bay	725,800 (0) (725,800)	65,000 (0) (65,000)	1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

1. **Navigation** (Cont'd)

a. **Channels and Harbors** (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Maryland (Cont'd)			
Northeast River	29,500 (0) (29,500)	117,000 (0) (117,000)	1 None. 2. None.
Ocean City Harbor & Inlet & Sinepuxent Bay	120,800 (73,000) (47,800)	582,000 (0) (582,000)	1. None. 2. Dredging in FY 97.
Tilghman Island Harbor	227,300 (0) (227,300)	50,000 (0) (50,000)	1. None. 2. None.
Twitch Cove & Big Thorofare	144,000 (72,000) (72,000)	744,000 (0) (744,000)	1. None. 2. Dredging FY 97

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

1. **Navigation** (Cont'd)

a. **Channels and Harbors** (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	 FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Maryland (Cont'd)			
Wicomico River	594,600 (0) (594,600)	70,000 (0) (70,000)	1. None. 2. None.
New Jersey			
Barnegat Inlet	1,454,000 (130,000) (1,324,000)	1,275,000 (0) (1,275,000)	1. Beach monitoring, FY 1996. 2. Dredging.
Cheesequake Creek	160,000 (0) (160,000)	430,000 (0) (430,000)	1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

1. Navigation (Cont'd)

a. Channels and Harbors (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
New Jersey (Cont'd)			
Cold Spring Inlet	642,000 (0) (642,000)	500,000 (0) (500,000)	1. None. 2. Dredging.
Delaware River at Camden	100,000 (0) (100,000)	20,000 (20,000) (0)	1. Channel exams FY 97. 2. None.
Delaware River, Philadelphia to the Sea, PA, NJ and DE	16,257,000 (1,631,000) (14,626,000)	15,195,000 (1,500,000) (13,695,000)	1. None. 2. Maintenance dredging and land acquisition--Oldmans disposal area.
Delaware River, Philadelphia to Trenton, NJ	3,120,000 (400,000) (2,720,000)	1,445,000 (420,000) (1,025,000)	1. None. 2. Dredging.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

1. **Navigation** (Cont'd)

a. **Channels and Harbors** (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
New Jersey (Cont'd)			
Keyport Harbor	0 (0) (0)	50,000 (0) (50,000)	1. None. 2. None.
Manasquan River	354,000 (0) (354,000)	2,300,000 (0) (2,300,000)	1. None. 2. Repair North and South jetties.
Matawan Creek	0 (0) (0)	50,000 (0) (50,000)	1. None. 2. None.
Newark Bay, Hackensack, & Passaic Rivers	430,000 (0) (430,000)	1,190,000 (0) (1,190,000)	1. None. 2. Sampling and testing for maintenance dredging.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

1. Navigation (Cont'd)

a. Channels and Harbors (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	 FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
New Jersey (Cont'd)			
New Jersey Intracoastal Waterway	2,567,000 (384,000) (2,183,000)	2,079,000 (375,000) (1,704,000)	1. None. 2. Dredging.
Shark River	600,000 (0) (600,000)	420,000 (0) (420,000)	1. None. 2. None.
Shoal Harbor Compton Creek	300,000 (0) (300,000)	375,000 (0) (375,000)	1. None. 2. None.
New York			
Bay Ridge & Red Hook Channels	40,000 (0) (40,000)	465,000 (0) (465,000)	1. None. 2. None.

369

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

1. **Navigation** (Cont'd)

a. **Channels and Harbors** (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
New York (Cont'd)			
Bronx River	10,000 (0) (10,000)	365,000 (0) (365,000)	1. None 2. None.
Eastchester Creek	10,000 (0) (10,000)	625,000 (0) (625,000)	1. None. 2. Dredge navigation channel.
East Rockaway Inlet	2,664,000 (0) (2,664,000)	90,000 (0) (90,000)	1. None. 2. None.
Fire Island Inlet	0 (0) (0)	120,000 (0) (120,000)	1. None. 2. None.
Fire Island to Jones Inlet	1,604,000 (0) (1,604,000)	900,000 (0) (900,000)	1. None. 2. Dredge navigation channel/Beach nourishment.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

1. **Navigation** (Cont'd)

a. **Channels and Harbors** (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	 FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
New York (Cont'd)			
Flushing Bay and Creek	0 (0) (0)	380,000 (0) (380,000)	1. None. 2. None.
Hudson River	3,904,000 (1,178,000) (2,726,000)	2,215,000 (1,250,000) (965,000)	1. None. 2. Variation in dredging requirements and variation in Lock Structure maintenance.
Hudson River Channel	30,000 (0) (30,000)	925,000 (0) (925,000)	1. None 2. Dredge navigation channel.
Jamaica Bay	80,000 (0) (80,000)	1,300,000 (0) (1,300,000)	1. None. 2. Dredge navigation channel/sampling & testing.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

1. Navigation (Cont'd)

a. Channels and Harbors (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	 FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
New York (Cont'd)			
Jones Inlet	4,780,000 (0) (4,780,000)	1,005,000 (0) (1,005,000)	1. None. 2. Periodic dredging/Jetty repair CC FY96/97.
Lake Montauk Harbor	930,000 (0) (930,000)	85,000 (0) (85,000)	1. None. 2. None.
Mattituck Harbor	845,000 (0) (845,000)	100,000 (0) (100,000)	1. None. 2. None.
Moriches Inlet	0 (0) (0)	80,000 (0) (80,000)	1. None. 2. None.

696

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

1. **Navigation** (Cont'd)

a. **Channels and Harbors** (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	 FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
New York (Cont'd)			
New York And New Jersey Channels	150,000 (0) (150,000)	1,750,000 (0) (1,750,000)	1. None. 2. Dredge navigation channel.
New York Harbor	5,788,000 (5,325,000) (463,000)	5,798,000 (3,592,000) (2,206,000)	1. Change in Dredged Material Management study. 2. Dredge Material Disposal Facility Construction and Maintenance.
Rondout Harbor	0 (0) (0)	740,000 (0) (740,000)	1. None. 2. Dredge navigation channel.

697

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

1. **Navigation** (Cont'd)

a. **Channels and Harbors** (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	 FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
New York (Cont'd)			
Shinnecock Inlet	50,000 (0) (50,000)	500,000 (0) (500,000)	1. None. 2. Dredge navigation channel.
Westchester Creek	10,000 (0) (10,000)	500,000 (0) (500,000)	1. None. 2. Dredge navigation channel.
Pennsylvania			
Schuylkill River	1,610,000 (50,000) (1,560,000)	350,000 (50,000) (300,000)	1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

1. Navigation (Cont'd)

a. Channels and Harbors (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Vermont			
Narrows of Lake Champlain	45,000 (10,000) (35,000)	46,000 (10,000) (36,000)	1. None. 2. None.
Virginia			
Appomattox River	1,000 (1,000) (0)	5,000 (5,000) (0)	1. Compliance and utilization inspections. 2. None.
Atlantic Intracoastal Waterway (ACC) & (DSC)	3,049,000 (1,801,000) (1,248,000)	2,290,000 (1,727,000) (563,000)	1. Operation for permanent operating equipment. 2. Dredging and Lock maintenance.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

1. **Navigation** (Cont'd)

a. **Channels and Harbors** (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Virginia (Cont'd)			
Broad Creek	(0)	1,000	
	(0)	(0)	1. None.
	(0)	(1,000)	2. None.
Channel to Newport News	567,000	50,000	
	(50,000)	(50,000)	1. None.
	(517,000)	(0)	2. None.
Chincoteague Bay Channel	40,000	125,000	
	(0)	(0)	1. None.
	(40,000)	(125,000)	2. None.

700

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

1. Navigation (Cont'd)

a. Channels and Harbors (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Virginia (Cont'd)			
Chincoteague Harbor of Refuge inspections.	35,000 (0) (35,000)	144,000 (2,000) (142,000)	1. Management, compliance and utilization 2. None.
Chincoteague Inlet	854,000 (43,000) (811,000)	887,000 (43,000) (844,000)	1. None. 2. Dredge the channel across the ocean bar.
Hampton Creek	0 (0) (0)	210,000 (0) (210,000)	1. None. 2. None.
Horn Harbor	0 (0) (0)	125,000 (0) (125,000)	1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

1. **Navigation** (Cont'd)

a. **Channels and Harbors** (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	 FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Virginia (Cont'd)			
James River	2,254,000 (274,000) (1,980,000)	2,567,000 (228,000) (2,339,000)	1. Dredged material disposal investigation. 2. Required maintenance dredging.
Lynnhaven Inlet	0 (0) (0)	712,000 (2,000) (710,000)	1. Management compliance and utilization inspection. 2. Required maintenance dredging.
Neabsco Creek	54,600 (0) (54,600)	137,000 (0) (137,000)	1. None. 2. None.
Norfolk Harbor	4,233,000 (786,000) (3,447,000)	5,000,000 (450,000) (4,550,000)	1. Required survey to identify shoals. 2. Required maintenance dredging and dredged material disposal.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

1. **Navigation** (Cont'd)

a. **Channels and Harbors** (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Virginia (Cont'd)			
Parker Creek	0 (0) (0)	113,000 (0) (113,000)	1. None. 2. None.
Parrotts Creek	0 (0) (0)	234,000 (0) (234,000)	1. None. 2. None.
Potomac River at Alexandria	35,000 (0) (35,000)	41,000 (0) (41,000)	1. None. 2. None.
Rudee Inlet	553,000 (0) (553,000)	608,000 (0) (608,000)	1. None. 2. Required maintenance dredging.

23-577 96-23

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

1. **Navigation** (Cont'd)

a. **Channels and Harbors** (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Virginia (Cont'd)			
Thimble Shoal Channel	1,303,000 (185,000) (1,118,000)	152,000 (152,000) (0)	1. Required survey and E&D to identify shoals. 2. None.
Tylers Beach	33,000 (0) (33,000)	170,000 (0) (170,000)	1. None. 2. None.
Waterway on the Coast of Virginia	1,219,000 (247,000) (972,000)	1,246,000 (256,000) (990,000)	1. None. 2. Required maintenance dredging.
Other Projects Maintained Periodically	6,780,400 (39,300) (6,741,100)	0 (0) (0)	1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

1. **Navigation** (Cont'd)

a. **Channels and Harbors** (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Total-Channel & Harbor	117,434,600 (17,438,800) (99,995,800)	103,227,000 (15,025,000) (88,202,000)	

b. **Locks and Dams:** NONE

TOTAL NAVIGATION	117,434,600 (17,438,800) (99,995,800)	103,227,000 (15,025,000) (88,202,000)	

NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

2. Flood Control

a. Reservoirs

The budget estimate of $22,193,000 provides for the operation of 20 flood control reservoirs. Requirements include: operation and ordinary maintenance of project facilities, labor, supplies, materials, and parts for day-to-day functioning; periodic maintenance, repairs and replacements; and contract law enforcement. The requested amount also includes application of special recreation use fees for recreation areas.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Maryland			
Jennings Randolph Lake	1,666,900 (1,545,900) (121,000)	1,600,000 (1,467,000) (133,000)	1. None. 2. None.
New York			
Alcove Lake	424,500 (404,500) (20,000)	525,000 (501,000) (24,000)	1. Periodic inspection of project. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

2. **Flood Control** (Cont'd)

a. **Reservoirs** (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
New York (Cont'd)			
Arkport Dam	220,100 (209,100) (11,000)	259,000 (245,000) (14,000)	1. Periodic inspection of project. 2. None.
East Sidney Lake	494,100 (410,100) (84,000)	466,000 (388,000) (78,000)	1. None. 2. None.
Whitney Point Lake	2,356,800 (423,000) (1,933,800)	510,000 (432,000) (78,000)	1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

2. **Flood Control** (Cont'd)

a. **Reservoirs** (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Pennsylvania			
Alvin R. Bush Dam	606,400 (503,000) (103,400)	635,000 (544,000) (91,000)	1. None. 2. None.
Aylesworth Creek Lake	197,800 (188,800) (9,000)	219,000 (207,000) (12,000)	1. None. 2. None.
Beltzville Lake	1,411,000 (781,000) (630,000)	830,000 (725,000) (105,000)	1. Real estate and survey monumentation, FY 1996. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

2. **Flood Control** (Cont'd)

a. **Reservoirs** (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	 FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Pennsylvania (Cont'd)			
Blue Marsh Lake	2,328,000 (1,896,000) (432,000)	2,194,000 (2,066,000) (128,000)	1. None. 2. None.
Cowanesque Lake	2,797,200 (1,241,100) (1,556,100)	2,076,000 (1,337,000) (739,000)	1. None. 2. Continuing contract to repair control gates.
Curwensville Lake	659,000 (561,000) (98,000)	754,000 (661,000) (93,000)	1. Sediment survey of project. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

2. Flood Control (Cont'd)

a. **Reservoirs** (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Pennsylvania (Cont'd)			
Foster Joseph Sayers Dam	707,200 (610,000) (97,200)	744,000 (657,000) (87,000)	1. None. 2. None.
Francis E. Walter Dam	909,000 (585,000) (324,000)	818,000 (713,000) (105,000)	1. Increase in water control management FY 97. 2. None.
General Edgar Jadwin Dam and Reservoir	332,000 (311,000) (21,000)	587,000 (257,000) (330,000)	1. Periodic inspection/survey monumentation, FY 96. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

2. Flood Control (Cont'd)

a. Reservoirs (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Pennsylvania (Cont'd)			
Prompton Lake	670,000 (458,000) (212,000)	586,000 (381,000) (205,000)	1. Periodic inspections/survey monumentation. 2. None.
Raystown Lake	6,246,900 (2,222,000) (4,024,900)	3,690,000 (2,436,000) (1,254,000)	1. None. 2. None.
Stillwater Lake	348,500 (324,500) (24,000)	345,000 (316,000) (29,000)	1. None. 2. None.
Tioga-Hammond Lakes	2,489,300 (1,615,000) (874,300)	2,577,000 (1,873,000) (704,000)	1. Periodic inspection of project and bridges. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

2. **Flood Control** (Cont'd)

a. **Reservoirs** (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Pennsylvania (Cont'd)			
York Indian Rock Dam	1,578,200 (506,000) (1,072,200)	1,297,000 (510,000) (787,000)	1. None. 2. Continuing to repair deteriorated concrete.
Virginia			
Gathright Dam and Lake Moomaw	2,088,000 (1,103,000) (985,000)	1,481,000 (1,361,000) (120,000)	1. Dam and Tower operations: service facilities and water quality management. 2. None.
Total reservoirs	(28,530,900 (15,898,000) (12,632,900)	22,193,000 (17,077,000) (5,116,000)	

712

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

2. **Flood Control** (Cont'd)

a. **Reservoirs** (Cont'd)

Scheduling Reservoir Operations

The $179,000 requested in FY 1997 supports preparation, review and updating of water control manuals, real-time data collection to monitor hydrologic conditions, and the issuance of gate regulation instructions as necessary at 2 non-Corps dam and reservoir projects at which the Corps is responsible for flood control or navigation.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	 FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Maryland	128,900 (128,900) (0)	119,000 (119,000) (0)	1. None. 2. None.
Pennsylvania	64,400 (64,400) (0)	60,000 (60,000) (0)	1. None. 2. None.
Total Scheduling of Reservoir Operations	193,300 (193,300) (0)	179,000 (179,000) (0)	
Total Reservoirs and Scheduling of Reservoir Operations	28,724,200 (16,091,300) (12,632,900)	22,372,000 (17,256,000) (5,116,000)	

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

2. Flood Control (Cont'd)

b. Channel Improvements

The budget estimate of $1,008,000 provides for the essential annual requirement of 2 local flood protection projects, including 10 separate units of the Southern New York projects.

Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Maryland			
Cumberland, MD and Ridgeley, WV	103,700 (103,700) (0)	108,000 (108,000) (0)	1. None. 2. None.
New York			
Southern New York Projects	821,800 (664,600) (157,200)	900,000 (735,000) (165,000)	1. None. 2. None.
Total Channel Improvements	925,500 (768,500)	1,008,000 (843,000)	

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

2. **Flood Control** (Cont'd)

b. **Channel Improvements**

The budget estimate of $1,008,000 provides for the essential annual requirement of 2 local flood protection projects, including 10 separate units of the Southern New York projects.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Maryland			
Cumberland, MD and Ridgeley, WV	103,700 (103,700) (0)	108,000 (108,000) (0)	1. None. 2. None.
New York			
Southern New York Projects	821,800 (664,800) (157,000)	900,000 (735,000) (165,000)	1. None. 2. None.
Total Channel Improvements	925,500 (768,500) (157,000)	1,008,000 (843,000) (165,000)	

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

2. Flood Control (Cont'd)

b. Channel Improvements (Cont'd)

Inspection of Completed Works and Miscellaneous Maintenance

The $986,000 requested in FY 1997 supports inspections at flood control projects constructed by the Corps and operated and maintained by non-Federal interests. The inspections are conducted to determine the extent of compliance with legal standards and to advice local interests, as necessary, of corrective measures required to ensure that project structures and facilities will continue to safely provide flood protection benefits. These projects consist of features such as channels, levees, flood walls, drainage structures and pumping plants.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Connecticut	3,000 (3,000) (0)	3,000 (3,000) (0)	1. None. 2. None.
District of Columbia	4,000 (4,000) (0)	7,000 (7,000) (0)	1. Congressional Reduction 2. None.
Maryland	20,000 (20,000) (0)	30,000 (30,000) (0)	1. Congressional Reduction 2. None.
Massachusetts	12,000 (12,000) (0)	12,000 (12,000) (0)	1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

2. Flood Control (Cont'd)

b. Channel Improvements

Inspection of Completed Works and Miscellaneous Maintenance

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
New Jersey	287,000	293,000	
(Includes the Passaic	(287,000)	(293,000)	1. None.
Flood Warning System)	(0)	(0)	2. None.
New York	148,000	305,000	
	(148,000)	(305,000)	1. Congressional reduction.
	(0)	(0)	2. None.
Pennsylvania	89,100	116,000	
	(89,100)	(116,000)	1. Congressional Reduction.
	(0)	(0)	2. None.
Vermont	13,000	133,000	
	(13,000)	(133,000)	1. Congressional reduction.
	(0)	(0)	2. None.
Virginia	38,000	69,000	
	(38,000)	(69,000)	1. Inspection of flood control works.
	(0)	(0)	2. None.

717

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

2. Flood Control (Cont'd)

b. Channel Improvements

Inspection of Completed Works and Miscellaneous Maintenance

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
West Virginia	12,000 (12,000) (0)	18,000 (18,000) (0)	1. Congressional Reduction. 2. None.
Total Inspection of Completed Works and Miscellaneous Maintenance	626,100 (626,100) (0)	986,000 (986,000) (0)	
Total Channel Improvements, Inspections of completed works and Miscell. Maint.	1,551,600 (1,394,600) (157,000)	1,994,000 (1,829,000) (165,000)	
TOTAL-FLOOD CONTROL	30,275,800 (17,485,900) (12,789,900)	24,366,000 (19,085,000) (5,281,000)	

APPROPRIATION TITLE: Operation and Maintenance, General FY 1996 (Cont'd)

3. **Multiple Purpose Power Projects** - NONE

4. **Protection of Navigation**

The budget estimate of $7,734,000 provides for accomplishing the work essential to the administration and enforcement of specific laws enacted for the protection of navigation, including the prevention of obstructive and injurious deposits in the tidal waters of three major harbors; removal of drift and debris.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	 FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Prevention of Obstructive and Injurious Deposits:			
Baltimore Harbor, MD	500,100 (500,100) (0)	550,000 (550,000) (0)	1. None. 2. None.
New York Harbor, NY & NJ	712,000 (712,000) (0)	730,000 (730,000) (0)	1. None. 2. None.
Norfolk Harbor, VA	192,000 (150,000) (42,000)	232,000 (232,000) (0)	1. Identify serious pollution and dumping refuse 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

4. **Protection of Navigation** (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Collection and Removal of Drift:			
Baltimore Harbor Drift Removal, MD	437,000 (0) (437,000)	420,000 (0) (420,000)	1. None. 2. None.
Hampton Roads Drift Removal, VA	622,000 (87,000) (535,000)	700,000 (0) (700,000)	1. Variation in required operations. 2. Collect & remove floating drift and debris
New York Harbor Drift Removal, NY & NJ	4,588,000 (0) (4,588,000)	4,273,000 (0) (4,273,000)	1. None. 2. None.
Removal of Drift & Debris from the Potomac and Anacostia River, DC	755,000 (0) (755,000)	829,000 (0) (829,000)	1. None. 2. None.
Total Prevention of Obstructive Deposits and Drift Removal	7,806,100 (1,449,100) (6,357,000)	7,734,000 (1,512,000) (6,222,000)	

720

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

4. Protection of Navigation (Cont'd)

Project Condition Surveys

The $2,601,000 requested in FY 1997 supports hydrographic surveys, inspections, and studies to determine the condition of navigation channels that do not have any other maintenance work included in the budget request and disseminate the information to users of the projects. For the projects that do not require maintenance, surveys are performed at manyof them in order to determine the degree of sedimentation so that the users can be advised of channel conditions and future maintenance can be scheduled.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	 FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
District of Columbia	0 (0) (0)	30,000 (30,000) (0)	1. Congressional reduction in FY 96. 2. None.
Maryland	165,000 (165,000) (0)	300,000 (300,000) (0)	1. Congressional reduction in FY 96. 2. None.
New Jersey	340,000 (340,000) (0)	354,000 (354,000) (0)	1. None. 2. None.

NORTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

4. Protection of Navigation (Cont'd)

Project Condition Surveys (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
New York	644,000 (644,000) (0)	1,206,000 (1,206,000) (0)	1. Congressional reduction in FY 96. 2. None.
Virginia	462,100 (462,100) (0)	711,000 (711,000) (0)	1. Dredging studies and sediment survey. 2. None
Total Project Condition Survey	1,611,100 (1,611,100) (0)	2,601,000 (2,601,000) (0)	

APPROPRIATION TITLE: Operation and Maintenance, General FY 1997 (Cont'd)

4. Protection of Navigation (Cont'd)

Project Condition Surveys (Cont'd)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 (2) Total (Operations) (Maintenance)	 FY 1997 (3) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Total Protection of Navigation and Project Condition Survey	9,417,200 (3,060,200) (6,357,000)	10,335,000 (4,133,000) (6,202,000)	
GRAND TOTAL-NORTH ATLANTIC DIVISION	157,127,600 (37,984,900) (119,142,700)	37,923,000 (38,223,000) (99,700,000)	

STATUS REPORT ON CIVIL WORKS ACTIVITIES
IN THE NORTH CENTRAL DIVISION

FISCAL YEAR 1997

COL James R. Van Epps, Division Commander

21 MARCH 1996

AREA OF RESPONSIBILITY

The North Central Division (NCD) services the water resources needs of all or parts of 12 states, with a population of 51 million, and 1,900 miles of International Border. The region includes 95 percent of the nation's fresh surface water, and about 20 percent of the nation's annual income and production capacity. Last year, 200 million tons of commodities were shipped through Corps operated lock facilities on the Mississippi, Illinois, and the Great Lakes navigation systems.

FY 1995 FISCAL PERFORMANCE

The North Central Division exceeded USACE goals for FY 1995 fiscal execution. In the General Investigations (GI) Program NCD scheduled $19,182,000 for expenditure and expended $18,539,000 or 96.6 percent. In the Construction General (CG) Program NCD scheduled $114,599,000 for expenditure and expended $109,686,000 or 95.7 percent. Similarly, in the Operations and Maintenance (O&M) Program NCD scheduled $217,775,000 for expenditure and expended $215,808,000 or 99.1 percent. The GI, CG, and O&M goals were 95, 95, and 96 percent respectively. Overall, the North Central Division expended 97.9 percent of the funds scheduled in FY 1995.

FY 1997 BUDGET REQUEST

The NCD budget request for FY 1997 is shown in the following table. The $297 million request is about $40 million greater than the FY 1996 allocation.

BUDGET SUMMARY
NORTH CENTRAL DIVISION

	FY 1996 Allocation	FY 1997 Request	Increase or Decrease
General Investigations			
Surveys	$ 6,413,000	$12,460,000	$ +6,047,000
PED	444,000	540,000	+96,000
Subtotal GI	(6,857,000)	(13,000,000)	(+6,143,000)
Construction, General			
Construction	39,079,000	48,720,000	+9,641,000
Major Rehabilitation	7,926,000	8,000,000	+74,000
Dam Safety Assurance	1,751,000	2,580,000	+829,000
Subtotal CG	(48,756,000)	(59,300,000)	(+10,544,000)
Operation and Maintenance			
Project Operation	81,860,000	86,532,000	+4,672,000
Project Maintenance	119,607,000	138,335,000	+18,728,000
Subtotal O&M	($201,467,000)	($224,867,000)	($+23,400,000)
GRAND TOTAL, NCD	$257,080,000	$297,167,000	$+40,087,000

GENERAL INVESTIGATIONS

The FY 1997 General Investigations request provides $13,000,000 to complete one study (Crookston, Minnesota), continue eight studies, and initiate two Preconstruction Engineering and Design projects (Des Plaines, Illinois and Crookston, Minnesota).

CROOKSTON, MN

The City of Crookston on the Red Lake River in northwestern Minnesota experiences frequent floods. Temporary emergency levees constructed by the city, together with flood fights, have prevented major damages in the past. However, the existing emergency levee system is in such poor condition that it offers no reliable degree of flood protection. The feasibility phase is currently 80 percent complete. The FY 1997 budget, $56,000, will be used to complete the feasibility phase in January 1997.

GRAND FORKS, ND

The Grand Forks, North Dakota, study is investigating the need for additional flood protection along the Red River of the North. A major flood in 1979 caused $7 million in damages and would have caused an additional $8 million if not for emergency flood fight efforts and temporary levees. The feasibility study is currently 45 percent complete. The FY 1997 budget, $361,000, will be used to continue the cost-shared feasibility study.

GENERAL INVESTIGATIONS (Cont'd)

DEVILS LAKE, ND

Devils Lake is located in north central North Dakota. The lake has no natural outlet and lake levels fluctuate widely. A feasibility study was initiated in October 1993 to consider all problem areas and define a plan to reduce flood damages. The feasibility study is currently about 10 percent complete. A collaborative, interagency effort conducted in 1995 for the feasibility study of the Devils Lake Basin resulted in a Plan of Study (POS) for five general areas: (1) basin water management, (2) lake stabilization, (3) water quality, (4) recreation, and (5) enhancement and conservation of fish and wildlife. The POS was approved on 5 Dec 95 and funds allocated in FY 1996 are being used to continue the feasibility study, with immediate emphasis on alternatives for a permanent outlet, upper basin storage and related water quality work. The FY 1997 budget request, $1,100,000, will be used to continue the cost-shared feasibility phase of the study.

ONONDAGA LAKE, NY

Onondaga Lake, located at Syracuse, is a part of the New York State Barge Canal and Oswego River Systems. The FY 1997 budget request, $120,000, will be used to continue the Corps' participation as a member and technical advisor to the Onondaga Lake Management Conference. The purpose of the Conference is to seek remedies to the severe water quality problems of Onondaga Lake.

FREEPORT, IL

The Freeport, Illinois, project was reauthorized in the Water Resources Development Act of 1990. The study will evaluate structural and non-structural measures to provide flood control at Freeport. The Feasibility Study Cost Sharing Agreement was signed on 21 December 1995. FY 1997 budget request, $200,000, will be used to continue the feasibility study.

UPPER MISSISSIPPI AND ILLINOIS
NAVIGATION STUDY

The Upper Mississippi River and Illinois Waterway System is recognized as both a nationally significant commercial navigation system and nationally significant ecosystem. Traffic in parts of the current navigation system is approaching capacity. At certain locks there are major back-ups, hazardous safety conditions due to congestion, and potential environmental damage when tows must delay and maintain position while awaiting lockage. The feasibility study, initiated in FY 1993, will identify and assess the need for navigation capacity

GENERAL INVESTIGATIONS (Cont'd)

improvements and conduct environmental studies to assess impacts to fish and wildlife that may result from capacity expansion. The FY 1997 budget request, $9,883,000, will be used to continue the study and to complete environmental data collection, continue economic and environmental analyses, and initiate the plan formulation process.

CORALVILLE LAKE, IA (SEC 216)

Coralville Lake, located on the Iowa River in Johnson County, Iowa, was first operated for flood control in 1958. Prior to 1993, the maximum reservoir outflow was 13,000 cfs. During 1993 the reservoir reached capacity and the uncontrolled outflow reached a record 24,600 cfs, which impacted on property and infrastructure not previously affected. This study will evaluate alternative reservoir regulation procedures, the efficiency of the structure, and the possibility of making non-structural and structural improvements. The funds requested for FY 1997, $235,000, will be used to complete the reconnaissance phase.

FABIUS RIVER, MO

The 15,000-acre Fabius River Drainage District, located in Lewis and Marion Counties Missouri, is protected by a levee constructed by the Federal Government in 1941 and improved in 1963. It borders the right bank of the Mississippi River opposite the city of Quincy, Illinois. During the Great Flood of 1993, the Fabius levee was overtopped, resulting in severe damages and the closure of the Mississippi River bridges at Quincy, IL, causing significant disruption of interstate transportation. The study will address flood damage reduction and environmental restoration opportunities in the drainage district. The funds requested for FY 1997, $318,000, will be used to complete the reconnaissance phase.

FOX RIVER, WI (SEC 216)

The existing Federal commercial navigation project, includes: water level and flow regulation responsibilities for Lake Winnebago and the Lower Fox; channels on the upper Fox River; and channels on the Wolf River. Commercial traffic has been almost non-existent since 1959. The study concluded there is no Federal interest in the navigation portion. However, there is continued Federal interest in water regulation and dam operation. After completion of the Draft Disposition Report and Draft EIS, in September 1995, the Governor of Wisconsin submitted a letter stating a desire to re-open negotiations. Two negotiation meetings have been held to date. Negotiations with the state or local units of government will go on concurrently with the completion of the Final Disposition Report. In FY 1997, the budget request of $187,000 will complete the Final Disposition Report in September 1997.

GENERAL INVESTIGATIONS (Cont'd)

DES PLAINES RIVER BASIN, IL

The Des Plaines River, Illinois, has a history of flooding, which has caused significant economic losses. Sixteen damaging floods have occurred since 1938, including major floods in 1986, 1987, and 1989. It is anticipated that the recommended project will consist of a series of retention reservoirs, setback levees and non-structural measures. The Feasibility Report will be completed in September 1996. The FY 1997 budget request, $350,000, will be used to initiate Preconstruction Engineering and design.

CROOKSTON, MN

The City of Crookston on the Red Lake River in northwestern Minnesota experiences frequent floods. The existing emergency levee system is in such poor condition that it offers no reliable degree of flood protection. Channel cutoffs and permanent levees appear to be the most feasible solution to the problems. The Feasibility Report is scheduled for completion in February 1997. The FY 1997 budget, $190,000, will be used to initiate Preconstruction Engineering and Design.

CONSTRUCTION GENERAL

The Construction General budget request for FY 1997 which totals $59,300,000 will be used to initiate one project (Chicago Shoreline, South Water Purification Plant Breakwater, Chicago, Illinois); complete four projects (Chaska, Minnesota; West Des Moines, Iowa; Souris, North Dakota; and O'Hare, Illinois); and continue 16 projects. This figure includes funding from the Inland Waterway Trust Fund ($1,400,000) to continue construction of Major Rehabilitation of Lock and Dam 14.

UPPER MISSISSIPPI RIVER SYSTEM
ENVIRONMENTAL MANAGEMENT PROGRAM

Through the Upper Mississippi River System Environmental Management Program (EMP), we are rehabilitating and enhancing fish and wildlife habitat and implementing long-term resource monitoring on the Upper Mississippi and the Illinois Rivers. Twenty EMP habitat projects are essentially complete. Fourteen projects are currently under construction. Fifteen additional projects are currently under design. The overall project is 51 percent complete. The FY 1997 budget request, $15,694,000, will be used to continue or initiate construction of 16 projects, complete construction of 5 projects, and continue design on 14 projects. The EMP authorizing legislation provides for an evaluation of the program's effectiveness, strengths, and weaknesses and a report on the results to Congress with recommendations for the modification and

continuance or termination of the program. Scoping of the report has been initiated, with contemplation of a 1998 submittal to Congress. The FY 1997 budget request includes $300,000 for this evaluation and report preparation.

DAM SAFETY -- NAVIGATION
PINE RIVER (DAM SAFETY), MN

The Pine River, Minnesota, dam safety assurance project includes construction of two tainter gate bays in the existing Pine River Dam to provide additional discharge capacity. The FY 1997 budget request, $680,000, will be used to continue planning, engineering, and design which is scheduled to be completed in 1998 to ready the project for construction.

CHICAGO SHORELINE, IL

Construction will be initiated to repair the 2,800 foot breakwater protecting the South Water Purification Plant in Chicago, Illinois. The FY 1997 budget request, $1,300,000, will be used to initiate construction. However, initiation of work is dependent upon authorization of construction.

PRESQUE ISLE PENINSULA, PA

Construction of the Presque Isle Peninsula project at Erie, Pennsylvania, was completed in November 1992. It consists of a system of 55 rubblemound breakwaters located offshore along the Presque Isle Peninsula and placement of approximately one half million tons of beach sand fill. The project includes a periodic nourishment program for 50 years. FY 1997 funds, $485,000, will be used to place the fifth year of post construction beach nourishment.

LOVES PARK, IL

The Loves Park, Illinois, project will provide 100-year flood protection for a highly urbanized portion of the city along Loves Park Creek. The protective works include 17,900 lineal feet of improved channel, 3 detention lakes, and a pump station. The project is currently 40 percent complete. The FY 1997 budget request, $2,000,000, will be used to continue construction of the project.

CONSTUCTION GENERAL (Cont'd)

MCCOOK AND THORNTON RESERVOIRS

The McCook and Thornton projects are part of the Chicago Tunnel and Reservoir Plan. FY 1996 carryover funds, $6,655,000, will be used to continue engineering and design in FY 1997. The project area covers 341 square miles in the City of Chicago and 48 adjacent suburbs. An estimated 170,000 structures are subject to basement flooding.

The Project Cooperation Agreement for the McCook Reservoir cannot be executed to initiate construction until the Special Reevaluation Report (SRR) and Environmental Impact Statement (EIS) are completed and approved. The local project sponsor and the McCook Quarry owner have suggested four reservoir alternatives in addition to the plan authorized in WRDA 1988. The Chicago District Engineer is currently preparing the SRR/EIS, which will provide an evaluation of these five reservoir plans. The SRR/EIS, which are scheduled to be completed and distributed for agency and public review in summer 1996, will identify the National Economic Development plan. Following completion of the public review process, a final plan will be selected for implementation.

O'HARE RESERVOIR, IL

The O'Hare reservoir will provide flood protection for 11.2 square miles in the communities of Arlington Heights, Des Plaines, and Mt. Prospect, Illinois. The FY 1997 budget request, $1,918,000, will be used to complete construction of the project. In FY 1995 and FY 1996 Congress had directed that the project be completed using reprogrammed funds. Due to a shortage of Construction General funds available for reprogramming within the Corps of Engineers the project has been budgeted to insure funds for completion. The principal project feature is an 1,050 acre-foot reservoir. Construction is currently 65 percent complete. Completion is scheduled for July 1997.

FORT WAYNE METROPOLITAN AREA, IN

The Fort Wayne, Indiana, project includes construction of 54,000 feet of new or upgraded levee, floodwalls, and closure structures. Flood damages prevented from the Maumee, St. Joseph, and St. Mary's River and Spy Run Creek on an annual basis are expected to exceed $8 million. FY 1997 funds, $7,000,000, will be used to initiate construction of Stage 3 and 4, continue construction of Stage 1, and complete construction of Stage 2. Construction is currently 2 percent complete.

CONSTUCTION GENERAL (Cont'd)

LITTLE CALUMET RIVER, IN

Construction of the Little Calumet River flood control project will provide flood protection to about 9,000 residential structures in Gary, Griffith, Hammond, Highland, and Munster, Indiana. Construction is currently 28 percent complete. The FY 1997 budget, $11,000,000, will be used to further continue construction to 51 percent complete.

MUSCATINE ISLAND, IA

The Muscatine Island, Iowa, project along the Mississippi River provides for increasing the level of flood protection for the Muscatine Island Levee District, the City of Muscatine, and the Muscatine-Louisa County Drainage District No.13 to a 200 year level of protection. Construction will be initiated in August 1996. The FY 1997 budget request, $500,000, will be used to continue construction.

WEST DES MOINES, IA

The West Des Moines, Iowa, project will provide 100-year flood protection for approximately 900 urban acres of the Cities of West Des Moines and Des Moines, near the Raccoon River and Walnut Creek. The protective works include approximately 4 miles of new or improved levee, 1,850 feet of floodwall, 2 pumping stations, and recreational facilities. The project is currently 55 percent complete. The FY 1997 budget request, $2,814,000 will be used to complete construction in May 1997.

CHASKA, MN

The Chaska, Minnesota, flood control project consists of a levee and interior drainage works along the Minnesota River, and flood diversion channels on Chaska Creek and East Creek. The project is currently 92 percent complete. The FY 1997 budget, $1,609,000, will be used to complete construction in December 1996.

MARSHALL, MN

Funds to initiate construction of the Marshall, Minnesota, Redwood River flood control project were received in FY 1996. Project features include upstream and downstream levees and structures that allow the existing diversion channel to carry its full design flow. The FY 1997 budget, $500,000, will be used to continue construction of the project.

CONSTUCTION GENERAL (Cont'd)

SHEYENNE RIVER, ND

Work is continuing on the Sheyenne River, North Dakota, flood control project. The FY 1997 funds, $500,000, will be used to continue planning, engineering, and design to provide for a five foot pool raise at the Baldhill Dam needed to provide an additional measure of flood protection downstream. The overall Sheyenne River project is currently 67 percent complete.

PORTAGE, WI

Funds to initiate construction of the Portage, Wisconsin, flood control project were received in FY 1996. Project features include improvements to and realignment of 3 miles of existing levees, a railroad closure, aesthetic and recreational features, and cultural resources mitigation. The FY 1997 budget, $1,700,000, will be used to continue construction of this project along the Wisconsin River.

SOURIS RIVER BASIN, ND

The Souris River Basin, North Dakota project will provide flood protection for urban and rural residents along the Souris River in North Dakota. Work continues on Lake Darling Dam modifications. In addition, flood storage has been provided at two Canadian reservoirs as a result of the recent completion of the Rafferty and Alameda Dams. The FY 1997 budget, $1,700,000, will be used to continue construction of the project, with completion scheduled for October 1997.

DAM SAFETY
HOMME LAKE (DAM SAFETY), ND

The Homme Lake, North Dakota, project provides for modifications of the dam spillway which has been identified as having inadequate capacity. The spillway would be overtopped by approximately 2.3 feet during the probable maximum flood which would cause substantial damage and threaten human safety downstream. FY 1997 funds, $450,000, will be used to continue planning, engineering, and design.

LAKE ASHTABULA AND BALDHILL DAM (DAM SAFETY), ND

The Lake Ashtabula-Baldhill Dam, North Dakota, dam safety assurance project includes construction of a new, ungated auxiliary spillway and rehabilitation of the existing spillway. The new, ungated spillway is being constructed under the dam safety program and the repair of the existing spillway will be accomplished under both Dam Safety and Major Rehabilitation authorities. The FY 1997 budget, $1,450,000, will be

CONSTUCTION GENERAL (Cont'd)

used to continue construction of the spillway. The project is currently 45 percent complete.

BURNS HARBOR, IN (MAJOR REHAB)
LAKE MICHIGAN

The Burns Harbor, Indiana, Major Rehabilitation project provides for construction of seven reef segments, one 1,575 feet long and six 375 feet long, 75 feet lakeward of the existing rubblemound breakwater to provide additional protection for vessels in this international harbor. Construction is currently 20 percent complete. FY 1997 funds, $4,000,000, will be used to continue construction.

LOCK 14, IA (MAJOR REHAB)
MISSISSIPPI RIVER

This Major Rehabilitation project provides for resurfacing the lock chamber and dam piers, replacement of the operating machinery and electrical system, installation of a bubbler system in one lock chamber, and replacement of the roller and tainter gate chain hoisting equipment. In 1995, 25 million tons of commodities transitted Lock 14. FY 1997 funds, $2,800,000, will be used to continue construction of the project

LAKE ASHTABULA AND BALDHILL DAM, ND (MAJOR REHAB)

Repair of the existing spillway Baldhill Dam, North Dakota, is being accomplished under the Dam Safety and Major Rehabilitation authorities. FY 1997 funds, $1,200,000, will be used to continue work on the spillway contract. Construction is currently 46 percent complete.

OPERATION AND MAINTENANCE GENERAL

	FY 1996 ALLOCATION	FY 1997 REQUEST	INCREASE/ DECREASE
1. NAVIGATION	$161,875,000	$183,329,000	$+21,454,000
2. FLOOD CONTROL	$ 19,637,000	$ 20,231,000	$ +594,000
3. MULTIPLE PURPOSE INCLUDING POWER	$ 16,664,000	$ 16,557,000	$ -107,000
4. PROTECTION OF NAVIGATION	$ 3,291,000	$ 4,750,000	$ +1,459,000
TOTAL	$201,467,000	$224,867,000	$+23,400,000

OPERATION AND MAINTENANCE GENERAL (Cont'd)

The Operation and Maintenance request for FY 1997 totals $224.9 million. This is an increase of $23.4 million when compared to the FY 1996 allocation. The largest activity is navigation budgeted at $183.3 million which includes $71.3 million for maintenance of channels and harbors and $112.0 million for locks, dams, and canals. This funding will provide for continued navigation on the Upper Mississippi River System and the Great Lakes.

Several Operation and Maintenance projects are of particular interest.

CLEVELAND HARBOR, OH

Cleveland Harbor has the most linear feet of breakwater on Lake Erie and requires the confinement of an average of 250,000 cubic yards annually of dredged material from the Cuyahoga River and associated channels. Design of a new Confined Disposal Facility (CDF) at Cleveland Harbor is complete. Construction is to begin in 1996. Due to delay caused by complicated design and coordination requirements, the currently active CDF (Dike 14) will be modified to increase its capacity to accommodate dredged material until the new CDF is completed.

INDIANA HARBOR, IN

The FY 1997 budget request supports detailed design of an initial Confined Disposal Facility (CDF) at Indiana Harbor, Indiana, to contain 4.67 million cubic yards of dredged material which is unsuitable for open lake disposal. An acceptable upland CDF site has been located. A draft Comprehensive Management Plan (CMP) is scheduled to be completed by April 1996. The final CMP is scheduled to be completed by August 1996. Costs for construction of the CDF will be shared with the non-Federal interests.

TOLEDO HARBOR, OH

Annually 16 million tons of cargo pass through Toledo Harbor, Ohio. Dredging averages 900 thousand cubic yards of material a year, a portion of which must be confined as polluted sediment. The FY 1997 budget request supports ongoing dredging of the harbor. In addition, we continue to be involved in a coordinated effort with local, state, and other Federal agencies in developing a long-term dredged material management plan for the harbor. This plan will address dredged material management and disposal decisions needed in order to assure navigation depths are maintained and local environmental concerns are met. The Phase III report, presently a five year interim action plan, will be finalized in FY 1996. Implementation of the interim action plan will be initiated in FY 1996 and continue in FY 1997.

23-577 96 – 24

EMERGENCY RESPONSES SINCE FY 1996 TESTIMONY

DEVILS LAKE, NORTH DAKOTA

The Corps of Engineers has been involved with emergency flood fight operations since early 1995 in the area surrounding Devils Lake, North Dakota. The level of the lake has risen rapidly over the past two years. The lake elevation is currently within five feet of the design elevation for the existing levee and it is forecasted that spring rains and snowmelt will cause the lake levels to rise to higher elevations. The Corps of Engineers, St. Paul District, is in the process of developing plans and specifications for an advance measures project under PL 84-99. The potential project is for the raise of an existing Corps levee which was constructed under Section 205 to protect the City of Devils Lake, and the construction of additional tie back levees. The St. Paul District has also developed a contingency plan in conjunction with other Federal and state agencies to address the potential flooding in the spring and early summer of 1996. The contingency plan considers alternative actions (including raising of the levee and/or providing a temporary outlet to the Sheyenne River) that could be implemented for a range of possible increases in the lake level. The Corps will continue to provide emergency flood fight assistance as conditions warrant.

The State of North Dakota plans to implement an emergency plan to pump Devil's Lake water to Stump Lake (located within the Devils Lake basin. The objective is to provide some relief (1-2 feet) from rising lake levels due to the 1996 spring snowmelt runoff. The State Water Commission has ordered pumps for the project. Implementation is expected to start this spring, with completion this summer. The State Water Commission is continuing efforts to obtain upper basin storage sites. Federal agencies have provided waiver of wetland determinations for temporary storage sites.

BUFFALO DISTRICT - JANUARY 1996

Ohio, Pennsylvania, and New York experienced severe flooding during the month of January 1996 due to a combination of rapid snowmelt and ice jams on numerous rivers and streams throughout the east. The Buffalo District provided flood fight assistance in the northern Ohio, northwest Pennsylvania, and western New York areas. Damage to existing flood control works in the Buffalo District was extensive as a result of the flooding. The preliminary estimate for repairs, which will be made under the authority of PL 84-99, is $1,500,000.

This concludes the North Central Division status report.

U. S. ARMY CORPS OF ENGINEERS
CIVIL WORKS PROGRAM

CONGRESSIONAL SUBMISSION
FISCAL YEAR 1997

NORTH CENTRAL DIVISION

Budgetary information will not be released outside the Department of the Army until 18 March 1996.

Justification of Estimate for Civil Functions Activities
Department of the Army, Fiscal Year 1997

NORTH CENTRAL DIVISION

Corps of Engineers

Table of Contents

	Page No.
Surveys	
Coralville Lake, Iowa	8
Crookston, Minnesota	2
Devils Lake, North Dakota	4
Fabius River Levee & Drainage District, Missouri	9
Fox River, Wisconsin	10
Freeport, Illinois	6
Grand Forks, North Dakota	3
Onondaga Lake, New York Sec 401, P.L. 101-596	5
Upper Mississippi & Illinois Navigation Study, Illinois, Iowa, Minnesota, Missouri, Wisconsin	7
Preconstruction Engineering and Design	
Crookston, Minnesota	13
Des Plaines River, Illinois	11

Justification of Estimate for Civil Functions Activities
Department of the Army, Fiscal Year 1997

NORTH CENTRAL DIVISION

Corps of Engineers

Table of Contents

Construction	Page No.
Burns Waterway Harbor, Indiana, (Major Rehab)	109
Chaska, Minnesota	72
Chicago Shoreline, Illinois (South Water Filtration Plant Breakwater)	27
Fort Wayne, Indiana	51
Homme Dam, South Branch Park River, North Dakota (Dam Safety)	100
Lake Ashtabula and Baldhill Dam, North Dakota (Dam Safety)	103
Lake Ashtabula and Baldhill Dam, North Dakota (Major Rehab)	118
Little Calumet River, Indiana	56
Lock and Dam 14, Mississippi River, Iowa (Major Rehab)	113
Loves Park, Illinois	36
Marshall, Minnesota	77
McCook and Thornton Reservoirs, Illinois	41
Muscatine Island, Iowa	62
O'Hare, Illinois	47
Pine River, North Dakota (Dam Safety)	24
Portage, Wisconsin	88
Presque Isle Peninsula, Pennsylvania (Permanent)	31
Sheyenne River, North Dakota	82
Souris River Basin, North Dakota	93

Justification of Estimate for Civil Functions Activities
Department of the Army, Fiscal Year 1997

NORTH CENTRAL DIVISION

Corps of Engineers

Table of Contents

	Page No.
Construction (continued)	
Upper Mississippi River System Environmental Management Program, Illinois, Iowa, Minnesota, Missouri, and Wisconsin	15
West Des Moines, Des Moines, Iowa	67
Operation and Maintenance	123
Mississippi River between Missouri River and Minneapolis, Minnesota Locks and Dams Nos. 3, 5A, 6, 7, 8, and 9, Minnesota, Wisconsin and Iowa (Major Rehab)	170

Justification of Estimate for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

SUMMARY, NORTH CENTRAL DIVISION

	FY 1996 Allocation	FY 1997 Request	Increase or Decrease
General Investigations			
Surveys	$ 6,413,000	$ 12,460,000	$ +6,047,000
Preconstruction Engineering and Design	444,000	540,000	+ 96,000
Subtotal General Investigation	(6,857,000)	(13,000,000)	(+6,143,000)
Construction, General			
Construction	39,079,000	48,720,000	+ 9,641,000
Major Rehabilitation	7,926,000 1/	8,000,000 2/	+ 74,000
Dam Safety Assurance	1,751,000	2,580,000	+ 829,000
Subtotal Construction, General	(48,756,000)	(59,300,000)	(+10,544,000)
Operation and Maintenance			
Project Operation	81,860,000	86,532,000	+ 4,672,000
Project Maintenance	119,607,000	138,335,000	+18,728,000
Subtotal Operation and Maintenance	(201,467,000)	(224,867,000)	(+23,400,000)
GRAND TOTAL, NORTH CENTRAL DIVISION	$257,080,000	$297,167,000	$+40,087,000

1/ Includes an estimated $1,813,000 to be derived from the Inland Waterways Trust Fund in FY 96.
2/ Includes an estimated $1,400,000 to be derived from the Inland Waterways Trust Fund in FY 97.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
1. SURVEYS - NEW - None					
2. SURVEYS - CONTINUING					
2a. Navigation: None					
2b. Flood Damage Prevention: The amount of $417,000 is requested in Fiscal Year 1997 to continue one study and to complete one study for flood damage prevention.					
MINNESOTA					
Crookston, MN	995,000	808,000	131,000	56,000	0

Crookston is located on the Red Lake River in northwestern Minnesota, about 15 miles east of the Minnesota - North Dakota border and about 85 miles south of the Canadian border. The principal water resource problems in the study area are flooding, riverbank instability, and erosion. The average annual flood damages at Crookston are estimated at $1,100,000, most of which are attributable to about 800 residences that are located in the floodplain. The flood of 1950 inundated most of the flood-prone properties. However, for subsequent floods, even though larger than the 1950 event, the city had erected temporary levees that, together with flood fights, have prevented major damage to residential areas. These levees were not constructed to permanent levee criteria and have deteriorated. The local residents are concerned that the deterioration of their temporary levee system creates a high risk for widespread damages to the residences in the flood-prone areas of Crookston with a recurrence of the 1969 or the 1979 floods. The flood-prone areas of the city are located in several separable reaches. The feasibility of each reach will be investigated. The Feasibility Cost Sharing Agreement with the City of Crookston was executed 19 October 1992.

Fiscal Year 1996 funds are being used to continue the feasibility phase of the study. The funds requested for Fiscal Year 1997 would be used to complete the feasibility phase of the study. The estimated cost of the feasibility phase is $1,174,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing follows:

Total Estimated Study Cost	$1,582,000
Reconnaissance Phase (Federal)	408,000
Feasibility Phase (Federal)	587,000
Feasibility Phase (Non-Federal)	587,000

The reconnaissance phase was completed in October 1992. The feasibility study is scheduled for completion in January 1997.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
NORTH DAKOTA					
Grand Forks, ND	1,560,000	962,000	157,000	361,000	80,000

Grand Forks, has a population of approximately 50,000. It is located on the Red River of the North, about 70 miles south of the Canadian Border. Since 1950, nine floods have threatened the city, the most recent occurring in 1993. A permanent levee project, in one short reach, plus flood fight efforts in other areas of the city have prevented significant damages. During the flood of 1979, $7,000,000 in damages were sustained. The permanent levee project has prevented over $10,000,000 in flood damages since it was constructed, and two reaches of emergency levees have been instrumental in the successful flood fights waged since 1966. However, unstable soil conditions exist in the area of the emergency levees, making them unreliable. In October 1985, the city of Grand Forks requested assistance in developing a flood protection project. The Feasibility Cost Sharing Agreement with the city of Grand Forks was executed 29 December 1993.

Fiscal Year 1996 funds will be used to continue the feasibility phase. The funds requested for Fiscal Year 1997 would also be used to continue the feasibility phase. The estimated cost of the feasibility phase is $2,200,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,660,000
Reconnaissance Phase (Federal)	460,000
Feasibility Phase (Federal)	1,100,000
Feasibility Phase (Non-Federal)	1,100,000

The reconnaissance phase was completed in December 1993. The scehdule for completion of the feasibility study is being determined.

SUB-TOTAL - FLOOD DAMAGE PREVENTION	2,555,000	1,770,000	288,000	417,000	80,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
2c. Shoreline Protection: None					
2d. Special studies: The amount of $1,220,000 is requested in Fiscal Year 1997 to continue two special studies.					
NORTH DAKOTA					
Devils Lake, ND	4,445,000	849,000	445,000	1,100,000	2,051,000

Devils Lake is located in north central North Dakota and has no natural outlet except at extremely high lake levels. The lake levels have fluctuated widely in the past, in response to multi-year wet and drought periods. According to accounts of early settlement in the basin, the elevation of Devils Lake was about 1446 feet in 1830, about 11 feet higher than the most recent high lake levels. In 1940, following many years of drought, Devils Lake was almost dry when the level dropped close to 1400 feet, the lowest level in recorded history. This drought has an estimated recurrence interval of between 400 to 600 years. In May 1995, lake levels reached an elevation of 1435.0 feet above mean sea level, the result of a multi-year wet period. Communities located on the lake include the city of Devils Lake (1990 population 7,782), the Fort Totten Indian Reservation, and the village of Minnewaukan. Camp Grafton, a National Guard training facility, is also located on the lakeshore. Problems include potential transportation, urban, and lakeshore flood damages, municipal, industrial, and agricultural water supply shortages, deteriorating water quality, reduced opportunities for recreation, reduced income for recreation dependent industries, and fish and wildlife conservation and enhancement losses. The study will include a basin water management analysis of all problem areas, including the definition of a stabilization plan for Devils Lake providing for an inlet and outlet at the Lake. The Feasibility Cost Sharing Agreement (FCSA) was executed with the North Dakota State Water Commission on 8 October 1993. A FCSA amendment to develop the Plan of Study was executed on 10 July 1995.

Fiscal Year 1996 funds are being used to continue the feasibility phase of the study. The funds requested for Fiscal Year 1997 would be used to continue the feasibility phase of the study. The estimated cost of the feasibility phase is $7,792,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing follows:

Total Estimated Study Cost	$8,341,000
Reconnaissance Phase (Federal)	549,000
Feasibility Phase (Federal)	3,896,000
Feasibility Phase (non-Federal)	3,896,000

The reconnaissance phase was completed in October 1993. The schedule for completion of the feasibility study is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
NEW YORK					
Onondaga Lake, NY SEC 401- P.L. 101-596	760,000	465,000	70,000	120,000	105,000

Onondaga Lake, which is a part of the New York State Barge Canal System and Oswego River System, has a total drainage area of 245 square miles and a surface area of 4.6 square miles. The city of Syracuse is located along the south shore of the lake. Major tributary streams to the lake are Ninemile Creek and Onondaga Creek. The lake empties into the Seneca River, also a part of the Erie Barge Canal. The major water resource problem associated with the lake is its degraded water quality. Currently, there is a ban on swimming and on the consumption of fish caught in the lake. There are some warm water species of fish, but the cold water species have disappeared. The poor quality deters optimal use of the lake's recreation potential, adversely affects fish and wildlife resources, stymies the potential for redevelopment and economic growth of the surrounding area, and impacts on the water quality of the Erie Canal. The Onondaga Lake Management Conference was established to develop a Management Plan which identifies the causes of poor lake water quality and investigate alternatives to reducing or eliminating the causes. The Management Plan has been completed with the following main components: Sewage treatment and discharge; Combined sewer overflows; Mercury and other industrial pollutants and wastes; Tully Valley mud boils; Fish and wildlife habitat and fisheries management; Inner harbor, shoreline use, lake use; and Non-point source pollution. These are all the responsibilities of state and/or local agencies to implement. The Conference was also charged with overseeing the implementation of the Management Plan.

Under the Section 401 of PL 101-596 authority, Fiscal Year 1996 funds are being used to participate in the Onondaga Lake Management Conference. The funds requested for Fiscal Year 1997 will be used to continue participation in the Management Conference activities.

SUB-TOTAL - SPECIAL STUDIES	5,205,000	1,314,000	515,000	1,220,000	2,156,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
2e. Comprehensive Basin Studies: None					

2f. Review of Deferred Projects: The amount of $200,000 is requested in Fiscal Year 1997 to continue one review of deferred project study.

ILLINOIS

Freeport, IL	1,005,000	250,000	80,000	200,000	475,000

Freeport is located in Stephenson County in northwest Illinois. The city is subject to flooding from the Pecatonica River and two tributaries, Currier Creek, and Yellow Creek. The area to be protected contains 1,000 acres and includes transportation, industrial, commercial, residential, and public facilities. About 260 residences, 50 commercial establishments, public facilities, and 10 industries, including three of Freeport's largest, are subject to flooding. With gage data since 1914, 117 floods have exceeded flood stage of 14 feet. The flood of record occurred in March 1929 when stages reached 19.7 feet and caused $1 million in damage (1994 dollars). More recent flood occurrences and damages experienced (1994 dollars) are: March 1963 ($474,000); July 1969 ($1,212,000); March 1975 ($727,000); and July 1990 ($275,000). Authorization was originally granted by the Flood Control Act of 1936. A GDM for a channel realignment was completed in 1965. In 1973, the local sponsor requested that work be halted, as they were unable to cost-share construction at that time. A severe flood occurred in 1975 and the city requested reactivation of the project. A Phase I GDM was completed in 1979, investigating alternatives to the authorized project. All alternatives were found infeasible. The project was deauthorized by the Water Resources Development Act (WRDA) of 1986 (PL 99-662). Recent flooding of the Pecatonica River prompted city officials to strongly support a review of flood damage reduction alternatives. The project was reauthorized in the WRDA of 1990. The Feasibility Cost-Sharing Agreement was signed in December 21,1995.

Fiscal Year 1996 funds will be used to initiate the feasibility study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility study. The preliminary estimated cost of the feasibility study is $1,510,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost-sharing is as follows:

Total Estimated Study Cost	$1,760,000
Reconnaissance Phase (Federal)	250,000
Feasibility Phase (Federal)	755,000
Feasibility Phase (non-Federal)	755,000

The reconnaissance phase was completed in December 1995. The feasibility study schedule is being determined.

SUB-TOTAL - REVIEW OF DEFERRED PROJECTS	1,005,000	250,000	80,000	200,000	475,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2g. Review of Completed Projects: The amount of $10,623,000 is requested in Fiscal Year 1997 to continue three studies and to complete one study under the review of completed projects.

ILLINOIS

Upper Mississippi & Illinois Navigation Study IL, IA, MN, MO, WI	50,360,000	22,671,000	4,625,000	9,883,000	13,181,000

The Upper Mississippi and Illinois Navigation Study will address the need for navigation capacity expansion on the Upper Mississippi River and the Illinois Waterway. The area includes 854 miles of the Upper Mississippi River, with 29 locks and dams, between Minneapolis-St. Paul and the mouth of the Ohio River, and 348 miles of the Illinois Waterway, with eight locks and dams, that connect the city of Chicago and the Great Lakes with the Mississippi River just upstream of the Melvin Price Locks and Dams. The system's principal problems are: (1) delays to commercial traffic at locks upstream of Melvin Price L&D due to limited lockage capacity and increasing traffic and (2) system congestion resulting in competition and potential conflict between recreational and commercial users. Reconnaissance studies have indicated that improvements to increase the capacity of certain locks on the Mississippi River and Illinois Waterway are economically justified.

The result of the feasibility study will be a prioritization of capital investment needs, including timing, for navigation improvements on the Upper Mississippi and Illinois Waterway system for the 50-year planning horizon. Recommendations will address the near-term and long-term needs for navigation capacity. In recognition of the tremendous environmental values of both waterways, the environmental impact statement will encompass system-wide and cumulative impacts. The feasibility study report will recommend to Congress the implementation of system investments, including the identification of the costs of mitigation of environmental impacts.

Fiscal Year 1996 funds are being used to continue the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility study.

The reconnaissance phase was completed in April 1993. The feasibility study schedule is being determined.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1997 North Central Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
IOWA					
Coralville Lake, IA	1,100,000	0	65,000	235,000	800,000

The Coralville Lake Reservoir/Dam was constructed under the authority of Public Law 761 of the 1938 Flood Control Act and was first operated for flood control in 1958. It is located on the Iowa River in Johnson County, Iowa, in the east central region of the state. The 1993 flood impacted businesses, residences, University of Iowa properties, transportation routes, and water supply and treatment facilities. An Initial Appraisal in 1994 under Section 216 determined a significantly changed physical and economic condition since the dam was placed into operation. Damages to residences and University facilities is estimated at $9,743,177, and damage to commercial properties is estimated at $13.5 million (this does not include agricultural, environmental, or infrastructure damages). It is estimated that more than $49 million in flood damages have been prevented by the Coralville Lake Reservoir. This study will include a comprehensive investigation to evaluate alternative reservoir regulation procedures, the efficiency of the structure, and the possibility of making non-structural and structural improvements. On February 15, 1995, the State of Iowa provided a letter of intent to cost-share and participate in a feasibility study effort.

Fiscal Year 1996 funds will be used to initiate the reconnaissance study. The funds requested for Fiscal Year 1997 will be used to complete the reconnaissance phase. The preliminary estimated cost of the feasibility study is $1,600,000, which is to be cost shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,900,000
Reconnaissance Phase (Federal)	300,000
Feasibility Phase (Federal)	800,000
Feasibility Phase (Non-Federal)	800,000

The reconnaissance phase will be completed in November 1997. The feasibility study schedule is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
MISSOURI					
Fabius River Drainage District, MO	1,000,000	0	82,000	318,000	600,000

The study will address flood damage reduction and environmental restoration opportunities at the Fabius River Drainage District in Missouri. The 15,000-acre drainage district is located in Lewis and Marion Counties and is protected by a levee constructed by the Federal Government in 1941 and improved in 1963. It borders the right bank of the Mississippi River opposite the city of Quincy, Illinois. The district contains cropland, backwater slough, and light industrial and commercial development including a small airport, railroad yards, and the Burlington Northern Railroad station serving Quincy, Illinois. The transportation infrastructure located in the drainage district is U.S. Highway 24, which serves the Illinois and Missouri regional area. The villages of Taylor and West Quincy are located within the district. Since the levee system was built, approximately $25 million in damages have been prevented. During the Great Flood of 1993, the Fabius levee was overtopped, which resulted in devastating flooding. A major regional impact of the flooding was the closure of the Mississippi River bridges at Quincy, IL. The levee was repaired to a pre-flood condition under Public Law 84-99 authority. In addition to flood damage reduction, measures would be considered to enhance backwater habitat adjacent to the mainstem Fabius levee. An Initial Appraisal was completed in FY 1995. A letter of intent was received on May 11, 1995, from the Fabius River Drainage District indicating that it is willing to cost share in the study.

The reconnaissance study will be initiated with the funds provided in FY 1996. Fiscal Year 1997 funds will be used to complete the reconnaissance study. The preliminary estimated cost of the feasibility study is $1,200,000, which is to be cost shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,600,000
Reconnaissance Phase (Federal)	400,000
Feasibility Phase (Federal)	600,000
Feasibility Phase (Non-Federal)	600,000

The reconnaissance phase will be completed in November 1997. The feasibility study schedule is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
WISCONSIN					
Fox River, WI	1,496,000	1,284,000	25,000	187,000	0

The Fox River is located in east-central Wisconsin. The existing Federal project includes: water level and flow regulation responsibilities for Lake Winnebago and the Lower Fox, including locks, dams, and channels on the lower Fox River from Depere to Menasha; four harbors on Lake Winnebago; channels on the upper Fox River from Lake Winnebago at Oshkosh to its junction with the Wolf River in Lake Butte Des Morts; and channels on the Wolf River from its mouth in Lake Butte Des Morts to New London, Wisconsin. The project was originally purchased by the Federal government in 1872 primarily for commercial navigation. Commercial traffic has been almost non-existent since 1959. Today, the project provides for recreational navigation, flood control, hydropower, water supply, and environmental enhancement. A Section 216 study was initiated in 1984 to determine the Federal interest in continued operations and maintenance of the project. To date, study conclusions are: no Federal interest in the navigation portion, continued Federal interest in water regulation and dam operation. Negotiations with the State of Wisconsin, initiated in September 1989, for project transfer were suspended in December 1990 because the State declined to accept any portion of the project at that time. Continued negotiations with other non-Federal local governments were suspended in early 1991 due to the need to complete necessary archeological and cultural studies. These archeological and cultural concerns will be addressed in the Final Disposition Report. An Interim Disposition Report, concluding a continued Federal interest in water regulation and associated dam operation, was completed in September 1991. Section 109 of the FY 1992 Energy and Water Development Appropriations Act authorized project transfer to the State of Wisconsin, subject to the execution of an agreement by the Secretary of the Army and the State of Wisconsin which specifies the terms and conditions for such transfer. In 1993, The Assistant Secretary of the Army (CW)(ASA(CW)) negotiated directly with the state. However, in December of 1993, negotiations between the State and ASA (CW) reached an impasse. Negotiations with local governments were turned over to the Corps in March 1994, when the Final Interim Disposition Report was approved (September 1991). The Draft Disposition Report and Draft EIS were completed in September 1995. In October 1995, the Governor of Wisconsin submitted a letter stating a desire to re-open negotiations. An initial negotiation meeting occurred on 10 January 1996, and a second one is scheduled for 16 February 1996. Negotiations with the state or local units of government will go on concurrently with the completion of the Final Disposition Report, which is scheduled for completion in September 1997.

In Fiscal Year 1996, funds will be used for internal Corps coordination of the Draft Disposition Report and for negotiation with the State for the transfer of the navigation system. In Fiscal Year 1997, funds will be used to initiate and complete the Final Disposition Report.

SUB-TOTAL - REVIEW OF COMPLETED PROJECTS	53,956,000	23,955,000	4,797,000	10,623,000	14,581,000
TOTAL SURVEYS - NEW AND CONTINUING	62,721,000	27,289,000	5,680,000	12,460,000	17,292,000

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

3. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES - NEW - None

4. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES - CONTINUING

4a. Navigation: None

4b. Flood Damage Prevention: The amount of $540,000 is requested in Fiscal Year 1997 to initiate two flood damage prevention projects.

ILLINOIS

Des Plaines River, IL	750,000	0	0	350,000	400,000

The Des Plaines River Basin starts in southwest Wisconsin and flows south into northeast Illinois. West of Chicago, the river turns southwest until it meets the Kankakee River where they form the Illinois River. The study area is located in Lake and Cook Counties in northeastern Illinois and has a drainage area of approximately 500 square miles. Much of the study area is becoming urbanized, however, portions of the basin are being kept as undeveloped open lands for recreation and for forest preserve. The Des Plaines River has a long history of flooding which has caused significant economic losses. The maximum flood of record, that of September 1986, caused an estimated $35 million in damage to 10,000 dwellings and 263 business and industrial sites. Over 15,000 residents were evacuated from the flooded area. In addition, severe impacts to the project area transportation networks were also identified. The feasibility phase will be completed in September 1996. It is anticipated that the final optimized recommended project will consist of a series of retention reservoirs along with setback levees and non-structural measures. The recommended project is presently estimated to cost $100,000,000. The average annual benefits are $10,000,000, all for flood control. The benefit-cost-ratio is 1.74 to 1 based upon the preliminary analysis dated January 1996. The State of Illinois indicated that it is the major potential local project sponsor.

The project is not authorized for construction. In accordance with the cost sharing and financing concepts currently being proposed by the Dept. of the Army, and being discussed among the Administration and the Congress, local interests will be required to provide lands, easements, rights-of-way and borrow and excavcated or dredged material disposal areas, modify or relocate utilities, roads, bridges, (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent of the costs allocated to flood control in cash during the period of construction; contribute an additional amount in cash or credits to bring the total non-federal share of costs allocated to structural flood control to 50 percent; and bear all costs of operation, repair, replacement, and maintenance of flood control facilities. Communities must agree to adopt additional flood plain management activities, beyond the current requirement to participate in the National Flood Insurance Program, in order to qualify for Federal participation in a structural flood

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

Des Plaines River, IL (Continued)

damage reduction project under the terms as described above. These activities, which are being discussed between the administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of stormwater runoff, and preservation of open space.

Total Estimated PED Cost	$1,000,000
PED Phase (Federal)	750,000
PED Phase (Non-Federal)	250,000

Fiscal Year 1996 funds are being utilized to complete the work on the feasibility phase. Fiscal Year 1997 funds will be used to initiate preconstruction engineering and design activities. This work will include initiation of the General Design Memorandum and field work such as borings and topographic surveys. The Preconstruction engineering and design schedule is being determined.

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
MINNESOTA					
Crookston, MN PED	750,000	0	0	190,000	560,000

The Red Lake River drains about 5,660 square miles in north central Minnesota and empties into the Red River of the North near Grand Forks, North Dakota. Approximately 5,280 square miles of the drainage area is located upstream of the city of Crookston, Minnesota. Significant flooding in Crookston has been documented as far back as 1887. A flood in 1950, although not the maximum flood of record, caused the highest damage to the city and resulted in the loss of two lives. A major flood in 1965 resulted in local construction of a number of temporary flood protection levees. Although the temporary structures helped protect the city, severe damages were still incurred from the 1965 flood. The flood of April 1969 was the maximum flood of record, requiring a massive emergency flood fight to limit flood damages and prevent loss of life. The temporary levee system has seriously deteriorated during the past 30 years and it is expected that a 100-year flood event would now result in damages in Crookston that would exceed $12 million. A cost shared feasibility study is currently underway with completion scheduled for January 1997. Studies to date indicate that the most likely Federal project consists of the following features: two downstream channel cutoffs, a road raise to protect the central business district, a permanent levee for the Wood's Addition neighborhood, and a permanent levee to protect the Thorndale neighborhood. The project cost is estimated to be $10 million with a benefit-cost ratio in excess of 1.5 to 1 (May 1995 price levels). The city of Crookston is the local sponsor. The mayor and City Council of Crookston have demonstrated ongoing and very strong support for the project.

The project is not authorized. In accordance with the cost sharing and financing concepts currently being proposed by the Dept. of the Army, and being discussed among the Administration and the Congress, local interests will be required to provide lands, easements, rights-of-way and borrow and excavcated or dredged material disposal areas, modify or relocate utilities, roads, bridges, (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent of the costs allocated to flood control in cash during the period of construction; contribute an additional amount in cash or credits to bring the total non-federal share of costs allocated to structural flood control to 50 percent; and bear all costs of operation, repair, replacement, and maintenance of flood control facilities. Communities must agree to adopt additional flood plain management activities, beyond the current requirement to participate in the National Flood Insurance Program, in order to qualify for Federal participation in a structural flood damage reduction project under the terms as described above. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of stormwater runoff, and preservation of open space.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Crookston, MN PED (Continued)					
		Total Estimated PED Cost	$1,000,000		
		PED Phase (Federal)	750,000		
		PED Phase (Non-Federal)	250,000		

Fiscal Year 1997 funds will be used to initiate work on the plans and specifications for the project. The Preconstruction engineering and design schedule is being determined.

SUB-TOTAL - FLOOD DAMAGE PREVENTION	1,500,000	0	0	540,000	960,000
TOTAL - PRECONSTRUCTION ENGINEERING AND DESIGN - NEW AND CONTINUING	1,500,000	0	0	540,000	960,000
GRAND TOTAL - GENERAL INVESTIGATIONS	64,221,000	27,289,000	5,680,000	13,000,000	18,252,000

APPROPRIATION TITLE: Construction, General - Navigation (Fish and Wildlife)

PROJECT: Upper Mississippi River System Environmental Management Program, Illinois, Iowa, Minnesota, Missouri, and Wisconsin (Continuing)

LOCATION: The program is authorized for those river reaches having commercial navigation channels on the Upper Mississippi River, Illinois River, Minnesota River, St. Croix River, and Kaskaskia River in the states of Illinois, Iowa, Minnesota, Missouri, and Wisconsin.

DESCRIPTION: The purpose of the Upper Mississippi River System Environmental Management Program (UMRS-EMP) is to ensure the coordinated development and enhancement of the Upper Mississippi River System, recognizing its several purposes. Habitat rehabilitation and enhancement projects are designed to counteract the effects of backwater sedimentation. Long-Term Resource Monitoring provides for more informed management of the UMRS. Ninety-seven percent of authorized UMRS-EMP funding is for habitat rehabilitation and enhancement projects and Long-Term Resource Monitoring. Recreation projects are an authorized program element but are not being funded due to a low Federal priority. An Economic Impacts of Recreation Study has defined the impact of recreational activities on local and regional economies. Navigation Traffic Monitoring is being conducted in conjunction with other navigation studies to ensure that the system is ready to meet the demands of the future.

AUTHORIZATION: FY 1985 Supplemental Appropriations Act, P.L. 99-88; Water Resources Development Act of 1986, PL 99-662, Section 1103; and Water Resources Development Act of 1990, P.L. 101-640, Section 405.

REMAINING BENEFIT-REMAINING COST: The remaining benefit-remaining cost ratio for the entire project is not applicable because monetary benefits are not quantified.

TOTAL BENEFIT-COST RATIO: The total benefit-cost ratio for the entire project is not applicable because monetary benefits are not quantified. Projects are selected and designed on the basis of cost effectiveness.

INITIAL BENEFIT-COST RATIO: The initial benefit-cost ratio for the entire project is not applicable because monetary benefits are not quantified.

BASIS OF BENEFIT-COST RATIO: The basis for the benefit-cost ratio for the entire project is not applicable because monetary benefits are not quantified.

Division: North Central

District: Rock Island

Upper Mississippi River System
Environmental Management Program
Illinois, Iowa, Minnesota
Missouri, and Wisconsin

18 MARCH 1996

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$ 222,737,000
Estimated Non-Federal Cost		3,542,000
Cash Contribution	$ 3,542,000	
Other Costs	0	
Total Estimated Project Cost		$ 226,279,000

		Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1995	109,836,000	
Conference Allowance for FY 1996	19,455,000	
Allocation for FY 1996	17,842,000 1/	
Allocations through FY 1996	127,678,000	57
Allocations Requested for FY 1997	15,694,000	64
Programmed Balance to Complete after FY 1997	79,365,000	
Unprogrammed Balance to Complete after FY 1997	0	

1/ Reflects $1,613,000 reduction assigned as savings and slippage.

STATUS: (1 Jan 1996)		PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Long Term Resource Monitoring		51	Being Determined
Economic Impacts of Recreation Study		100	(SEP 92)
Traffic Monitoring		100	(SEP 90)
Habitat Rehabilitation and Enhancement Projects (Construction)			
Angle Blackburn, MO	ST. LOUIS DISTRICT	0	Being Determined
Batchtown Mgt. Area, IL	ST. LOUIS DISTRICT	0	Being Determined
Calhoun Point, IL	ST. LOUIS DISTRICT	0	Being Determined
Clarksville Refuge, MO	ST. LOUIS DISTRICT	100	(APR 90)
Cuivre Island, MO	ST. LOUIS DISTRICT	5	Being Determined
Dresser Island, MO	ST. LOUIS DISTRICT	100	(SEP 91)
Least Tern, MO	ST. LOUIS DISTRICT	0	Being Determined
Norton Woods, MO	ST. LOUIS DISTRICT	0	Being Determined
Pharrs Island, Phase I, MO	ST. LOUIS DISTRICT	100	(JUN 92)
Pools 25 and 26, MO	ST. LOUIS DISTRICT	0	Being Determined
Stag & Keaton Is., MO	ST. LOUIS DISTRICT	0	Being Determined
Stump Lake, IL	ST. LOUIS DISTRICT	80	AUG 96
Swan Lake, IL	ST. LOUIS DISTRICT	30	Being Determined
Andalusia Refuge, IL	ROCK ISLAND DISTRICT	100	(DEC 94)
Banner Marsh, IL	ROCK ISLAND DISTRICT	0	Being Determined
Bay Island, MO	ROCK ISLAND DISTRICT	100	(NOV 94)
Bertom Lake, WI	ROCK ISLAND DISTRICT	100	(JUN 92)
Big Timber, IA	ROCK ISLAND DISTRICT	100	(JUN 95)
Brown's Lake, IA	ROCK ISLAND DISTRICT	100	(SEP 94)
Chautauqua Refuge, IL	ROCK ISLAND DISTRICT	75	Being Determined
Cottonwood Island, MO	ROCK ISLAND DISTRICT	0	Being Determined
Gardner Div., IL	ROCK ISLAND DISTRICT	0	Being Determined
Huron Island, IA	ROCK ISLAND DISTRICT	0	DEFERRED
Lake Odessa, IA	ROCK ISLAND DISTRICT	0	Being Determined
Molo Slough, IA	ROCK ISLAND DISTRICT	0	Being Determined
Monkey Chute, MO	ROCK ISLAND DISTRICT	100	(AUG 89)

Parentheses indicate actual date.

Division: North Central

District: Rock Island

Upper Mississippi River System
Environmental Management Program
Illinois, Iowa, Minnesota
Missouri, and Wisconsin

18 MARCH 1996

Peoria Lake, IL	ROCK ISLAND DISTRICT	75	JUL 97	
Pleasant Creek, IA	ROCK ISLAND DISTRICT	0	Being Determined	
Pool 11 Islands, WI	ROCK ISLAND DISTRICT	0	Being Determined	
Potters Marsh, IL	ROCK ISLAND DISTRICT	90	MAR 96	
Princeton, IA	ROCK ISLAND DISTRICT	25	Being Determined	
Rice Lake, IL	ROCK ISLAND DISTRICT	0	Being Determined	
Spring Lake, IL	ROCK ISLAND DISTRICT	25	Being Determined	
Ambrough Slough, WI	ST. PAUL DISTRICT	0	Being Determined	
Blackbird Slough, MN	ST. PAUL DISTRICT	0	Being Determined	
Blackhawk Park, WI	ST. PAUL DISTRICT	100	(NOV 90)	Parentheses indicate
Bussey Lake, IA	ST. PAUL DISTRICT	95	JUN 96	actual date.
Capoli Slough, WI	ST. PAUL DISTRICT	2	Being Determined	
Cold Springs, WI	ST. PAUL DISTRICT	100	(JUN 94)	
Conway Lake, IA	ST. PAUL DISTRICT	0	Being Determined	
East Channel, WI, MN	ST. PAUL DISTRICT	25	SEP 97	
Finger Lakes, MN	ST. PAUL DISTRICT	100	(JUL 94)	
Guttenberg Fish Ponds, IA	ST. PAUL DISTRICT	100	(NOV 89)	
Harpers Slough, WI	ST. PAUL DISTRICT	1	Being Determined	
Indian Slough, WI	ST. PAUL DISTRICT	100	(JUN 94)	
Island 42, MN	ST. PAUL DISTRICT	100	(MAY 87)	
Lake Onalaska, WI	ST. PAUL DISTRICT	100	(OCT 89)	
Lansing Big Lake, IA	ST. PAUL DISTRICT	100	(NOV 94)	
Long Lake, WI	ST. PAUL DISTRICT	0	DEFERRED	
Long Meadow Lake, MN	ST. PAUL DISTRICT	2	Being Determined	
Miss. Rvr Bank Stabilization, MN/WI	ST. PAUL DISTRICT	0	Being Determined	
Peterson Lake, MN	ST. PAUL DISTRICT	95	SEP 96	
Polander Lake, MN	ST. PAUL DISTRICT	40	Being Determined	
Pool 8 Isl, Phase I, WI	ST. PAUL DISTRICT	100	(JUN 93)	
Pool 8 Isl, Phase II, WI	ST. PAUL DISTRICT	4	Being Determined	
Pool 9 Isl Protection, WI	ST. PAUL DISTRICT	100	(JUN 95)	

STATUS: (Continued)		PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Pool Slough, IA, MN	ST. PAUL DISTRICT	2	Being Determined
Rice Lake, MN	ST. PAUL DISTRICT	25	SEP 97
Spring Lake, WI	ST. PAUL DISTRICT	100	(NOV 94)
Spring Lake Isl, WI	ST. PAUL DISTRICT	5	Being Determined
Trempealeau NWR, WI	ST. PAUL DISTRICT	10	Being Determined
Whitewater River, MN	ST. PAUL DISTRICT	2	DEFERRED
Other Habitat Projects		0	Being Determined
Recreation		0	UNSCHEDULED
Entire Project, Except Recreation		40	Being Determined

JUSTIFICATION: Implementation of the Upper Mississippi River System Environmental Management Program is essential to the continued viability of the Upper Mississippi River System and important to the long-term public acceptance and support of the navigation project. Habitat Rehabilitation and Enhancement projects will help counteract the negative effects of natural and human-induced factors on the system's backwaters and side channels. Projects are selected and designed on the basis of habitat outputs cost effectiveness. Long-Term Resource Monitoring assists in evaluating the performance of habitat projects, estimates the extent of continued habitat losses, and analyzes sediment and navigation-related problems and solutions. An Economic Impacts of Recreation Study has been conducted to enable Federal and non-Federal manágement decisions to better consider impacts on recreation and the consequent changes in recreation-related expenditures in the local and regional economies. Traffic monitoring will help ensure that the system is ready to meet the demands of the future.

FISCAL YEAR 1997: The requested amount of $15,694,000 will be applied as follows:

PROJECT	DISTRICT		STATUS
Calhoun Point, IL	ST. LOUIS DISTRICT	$ 518,000	Initiate Construction
Cuivre Island, MO	ST. LOUIS DISTRICT	280,000	Continue Construction
Norton Woods, MO	ST. LOUIS DISTRICT	20,000	Continue Design

Division: North Central

District: Rock Island

Upper Mississippi River System
Environmental Management Program
Illinois, Iowa, Minnesota
Missouri, and Wisconsin

FISCAL YEAR 1997 (Continued)

PROJECT	DISTRICT		STATUS
Swan Lake, IL	ST. LOUIS DISTRICT	1,631,000	Continue Construction
Banner Marsh, IL	ROCK ISLAND DISTRICT	550,000	Initiate Construction
Chautauqua Refuge, IL	ROCK ISLAND DISTRICT	232,000	Complete Construction
Cottonwood Island, MO	ROCK ISLAND DISTRICT	65,000	Initiate Construction
Gardner Division, IL	ROCK ISLAND DISTRICT	126,000	Continue Design
Lake Odessa, IA	ROCK ISLAND DISTRICT	278,000	Continue Design
Peoria Lake, IL	ROCK ISLAND DISTRICT	151,000	Complete Construction
Pool 11 Islands, WI	ROCK ISLAND DISTRICT	162,000	Continue Design
Princeton, IA	ROCK ISLAND DISTRICT	749,000	Continue Construction
Rice Lake, IL	ROCK ISLAND DISTRICT	192,000	Continue Design
Spring Lake, IL	ROCK ISLAND DISTRICT	1,413,000	Complete Construction
Ambrough Slough, WI	ST. PAUL DISTRICT	50,000	Continue Design
Blackbird Slough, MN	ST. PAUL DISTRICT	20,000	Continue Design
Capoli Slough, WI	ST. PAUL DISTRICT	105,000	Continue Design
Conway Lake, IA	ST. PAUL DISTRICT	40,000	Continue Design
East Channel, WI/MN	ST. PAUL DISTRICT	311,000	Complete Construction
Harpers Slough, WI	ST. PAUL DISTRICT	90,000	Continue Design
Long Meadow Lake, MN	ST. PAUL DISTRICT	90,000	Continue Design
Miss Rvr. Bank MN/WI	ST. PAUL DISTRICT	558,000	Continue Construction
Polander Lake, MN	ST. PAUL DISTRICT	133,000	Continue Construction
Pool 8 Islands Creation (Phase II), WI	ST. PAUL DISTRICT	40,000	Continue Design
Pool Slough, IA	ST. PAUL DISTRICT	50,000	Continue Design
Rice Lake, MN	ST. PAUL DISTRICT	153,000	Complete Construction
Spring Lake Islands, WI	ST. PAUL DISTRICT	228,000	Continue Construction
Trempealeau NWR, WI	ST. PAUL DISTRICT	1,556,000	Continue Construction
Long Term Resource Monitoring		4,894,000	Continue
Program Management		1,009,000	Continue
GRAND TOTAL		$ 15,694,000	

Division: North Central

District: Rock Island

Upper Mississippi River System
Environmental Management Program
Illinois, Iowa, Minnesota
Missouri, and Wisconsin

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986 and amended by Section 107(b) of the Water Resources Development Act of 1992, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Pay 25 percent of the first costs allocated to fish and wildlife enhancement for the following projects:		
Banner Marsh, IL	$ 1,355,000	
Blackhawk Park, WI	77,000	
Bussey Lake, IA	175,000	
Cuivre Island, MO	457,000	
Peoria Lake, IL	1,057,000	
Pool Slough, IA, MN	115,000	
Princeton, IA	23,000	
Rice Lake, IL	21,000	
Swan Lake, IL	262,000	
Subtotal	$3,542,000	
Pay 50% of the first costs allocated to recreation projects.	1/	
Total non-Federal Construction Costs	$3,542,000	

1/ No recreation projects budgeted.
The non-Federal sponsors have also agreed to make all required payments concurrently with project construction or reimburse their share of construction costs over the life of each project.

Division: North Central District: Rock Island

Upper Mississippi River System
Environmental Management Program
Illinois, Iowa, Minnesota
Missouri, and Wisconsin

STATUS OF LOCAL COOPERATION: A Project Cooperation Agreement is required only for a project that is not located on lands managed as a national wildlife refuge.

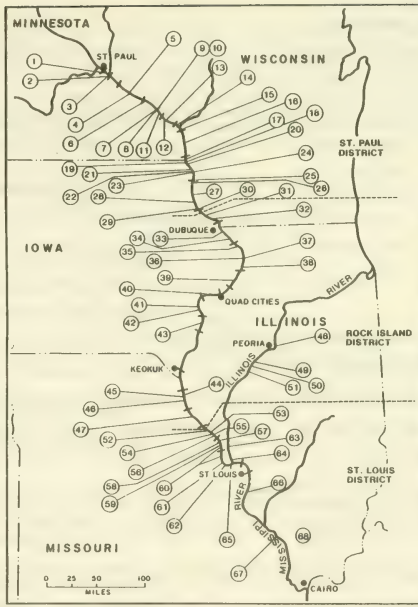
COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $222,737,000 is a decrease of $24,568,000 from the latest estimate ($246,899,000) presented to Congress (FY 1996). This change is due to the following item:

Item	Amount
Sundry 1/	$ -24,162,000
Total	$ -24,162,000

1/ The Federal cost estimate has been decreased to reflect the out-year budget ceilings.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: National Environmental Policy Act compliance is being accomplished prior to implementation of specific project construction.

OTHER INFORMATION: Funds to initiate construction were first appropriated in FY 1985. The EMP authorizing legislation includes a provision that, before the last day of the program, the Secretary of the Army, in consultation with the Secretary of the Interior and the Upper Mississippi River Basin Association, shall conduct an evaluation of the program and submit a report on the results of such evaluation to Congress. The evaluation shall determine the program's (habitat projects and long-term resource monitoring) effectiveness, strengths, and weaknesses and contain recommendations for the modification and continuance or termination of the program. Scoping of the report has been initiated, with contemplation of a 1998 submittal to Congress.



SITE NO	PROJECT	DISTRICT AGENCY	STATUS (AS OF JAN 96)
NA	GENERAL PLAN	NCD	UNDERWAY
NA	LONG TERM RESOURCES MONITORING	FWS	UNDERWAY
NA	ECONOMIC IMPACTS OF RECREATION	NCD	COMPLETE
NA	TRAFFIC MONITORING	NCR	COMPLETE
NA	REPORT TO CONGRESS	NCD/ROCK IS	UNDERWAY

HABITAT REHABILITATION

SITE NO.	PROJECT	STATUS
1	RICE LAKE, MN	FY 95 NEW START
2	LONG MEADOW LAKE, MN	SCHEDULED AFTER FY 97
3	GOOSE LAKE, MN	DEFERRED
4	PETERSON LAKE, MN	UNDERWAY
5	INDIAN SLOUGH BACKWATER, WI	COMPLETE
6	FINGER LAKES, MN	COMPLETE
7	ISLAND 42, MN	COMPLETE
8	WHITEWATER RIVER, MN	DEFERRED
9	SPRING LAKE PENINSULA, WI	COMPLETE
10	SPRING LAKE ISLANDS, WI	FY 97 NEW START
11	POLANDER LAKE, MN	UNDERWAY
12	BLACKBIRD SLOUGH, MN	SCHEDULED AFTER FY 97
13	TREMPEALEAU REFUGE, WI	UNDERWAY
14	LONG LAKE, WI	DEFERRED
15	LAKE ONALASKA, WI	COMPLETE
16	EAST CHANNEL, WI/MN	FY 96 NEW START
17	POOL 8 ISLANDS, PHASE I, WI	COMPLETE
18	POOL 8 ISLANDS, PHASE II, WI	SCHEDULED AFTER FY 97
19	POOL SLOUGH, IA/MN	SCHEDULED AFTER FY 97
20	BLACKHAWK PARK, WI	COMPLETE
21	LANSING BIG LAKE, IA	COMPLETE
22	CONWAY LAKE, IA	SCHEDULED AFTER FY 97
23	CAPOLI SLOUGH, MN	SCHEDULED AFTER FY 97
24	POOL 9 ISLAND PROTECTION, WI	COMPLETE
25	COLD SPRINGS, WI	COMPLETE
26	HARPERS SLOUGH, WI	SCHEDULED AFTER FY 97
27	AMBROUGH SLOUGH, WI	SCHEDULED AFTER FY 97
28	BUSSEY LAKE, IA	UNDERWAY
29	GUTTENBERG PONDS, IA	COMPLETE
30	MISS RIVER BANK STABILIZATION	FY 96 NEW START
31	BERTOM McCARTNEY LAKES, WI	COMPLETE
32	POOL 11 ISLAND, WI	SCHEDULED AFTER FY 97
33	PEVISTA, IA	SCHEDULED AFTER FY 97
34	MOLO SLOUGH, IA	SCHEDULED AFTER FY 97
35	PLEASANT CREEK, IA	SCHEDULED AFTER FY 97
36	BROWNS LAKE, IA	COMPLETE
37	SPRING LAKE, IL	UNDERWAY
38	POTTERS MARSH, IL	UNDERWAY
39	PRINCETON REFUGE, IL	UNDERWAY
40	ANDALUSIA REFUGE, IL	COMPLETE
41	BIG TIMBER, IA	COMPLETE
42	LAKE ODESSA, IA	SCHEDULED AFTER FY 97
43	HURON ISLAND, IA	SCHEDULED AFTER FY 97
44	GARDNER DIVISION, IL	SCHEDULED AFTER FY 97
45	COTTONWOOD ISLAND, MO	FY 97 NEW START
46	MONKEY CHUTE, MO	COMPLETE
47	BAY ISLAND, MO	COMPLETE
48	PEORIA LAKE, IL	UNDERWAY
49	BANNER MARSH, IL	FY 97 NEW START
50	RICE LAKE, IL	SCHEDULED AFTER FY 97
51	CHAUTAUQUA REFUGE, IL	UNDERWAY
52	CLARKSVILLE REFUGE, MO	COMPLETE
53	ALTON POOL, IL	TERMINATED
54	PHARRIS ISLAND, MO	UNDERWAY
55	ANGLE BLACKBURN, MO	SCHEDULED AFTER FY 97
56	NORTON WOODS, MO	SCHEDULED AFTER FY 97
57	STAG & KEETON ISLANDS, MO	SCHEDULED AFTER FY 97
58	BANDY CHUTE, IL	DEFERRED
59	BATCHTOWN MGMT. AREA, IL	SCHEDULED AFTER FY 97
60	POOLS 25 & 26, MO	SCHEDULED AFTER FY 97
61	CURVE ISLAND, MO	FY 97 NEW START
62	DRESSER ISLAND, IL	COMPLETE
63	STUMP LAKE, IL	UNDERWAY
64	SWAN LAKE, IL	UNDERWAY
65	CALHOUN POINT, IL	SCHEDULED AFTER FY 97
66	OSBORNE SIDE CHANNELS, IL	TERMINATED
67	LEAST TERN, MO	SCHEDULED AFTER FY 97
68	DIKE ALTERATIONS, MO & IL	DEFERRED

UPPER MISSISSIPPI RIVER SYSTEM

ENVIRONMENTAL MANAGEMENT PROGRAM

ROCK ISLAND DISTRICT
NORTH CENTRAL DIVISION
1 JANUARY 1996

763

18 MAR 1996

APPROPRIATION TITLE: Construction General - Dam Safety Assurance (Navigation)

PROJECT: Pine River Dam, Cross Lake, Minnesota (Continuing)

LOCATION: Pine River Dam is on the Pine River at the outlet of Cross Lake, about 16 river miles above the confluence of the Pine and Mississippi Rivers, 199 river miles above St. Paul. The dam is at the community of Cross Lake, Minnesota.

DESCRIPTION: The recommended plan for improvements to the Pine River Dam for dam safety assurance includes: addition of two 35-foot wide tainter gate bays to provide increased discharge capacity; raising embankment and perimeter dikes to elevation 1241.4 feet to achieve a 5-foot freeboard for the 70 percent probable maximum flood; lengthening upstream wing walls with sheetpile wall to reduce seepage; and raising the height of the existing structure to match the embankment.

AUTHORIZATION: River and Harbor Acts of 14 June 1880 and 2 August 1882.

REMAINING BENEFIT - REMAINING COST RATIO: No detailed economic analysis has been performed on this project.

TOTAL BENEFIT - COST RATIO: No detailed economic analysis has been performed on this project.

INITIAL BENEFIT - COST RATIO: No detailed economic analysis has been performed on this project.

BASIS OF BENEFIT - COST RATIO: No detailed economic analysis has been performed on this project.

SUMMARIZED FINANCIAL DATA		Accum. Pct. of Est. Fed. Cost	STATUS:(1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	$14,600,000				
Estimated Non-Federal Cost	0				
Total Estimated Project Cost	$14,600,000		Entire Project	0	Being Determined
Allocations to 30 September 1995	300,000				
Conference Allowance for FY 1996	0				
Allocation for FY 1996	240,000 1/				
Allocations through FY 1996	540,000	4			
Allocation Requested for FY 1997	680,000	8			
Programmed Balance to Complete after FY 1997	13,380,000				
Unprogrammed Balance to Complete after FY 1997	0				

1/ Reflects $240,000 reprogrammed to the project.

PHYSICAL DATA

Dams:
Two 35 foot gates.
Rehabilitation of existing structure.

DIVISION: North Central DISTRICT: St Paul Pine River Dam, Cross Lake, Minnesota

18 MARCH 1996

JUSTIFICATION: The National Dam Safety Program found that many older dams were not unsafe because of internal structural problems but because land use had changed drastically. When the Mississippi River Headwaters dams were built, very few people lived in the surrounding areas. Because these areas were undeveloped, flooding of any magnitude 80 to 100 years ago would have had very minor economic impacts and very little threat to life. Since then, development has occurred, population has dramatically increased and more data has become available for hydrologic studies. This site has been identified as having inadequate spillway capacity that would result in the unmodified dam embankment being overtopped by about 4.6 feet during the probable maximum flood (PMF) and that the embankment would be overtopped by 1.1 feet during an intermediate flood (70 percent of PMF). The abrupt increase in loss of life at about 40 percent of the PMF suggests that the dam is no longer capable of safely passing events greater than this value with adequate freeboard and that a failure resulting from a breach of the main embankment is possible.

FISCAL YEAR 1997: The requested amount of $680,000 will be applied as follows:

Planning, Engineering and Design	$ 660,000
Real Estate Activities	20,000
Total	$ 680,000

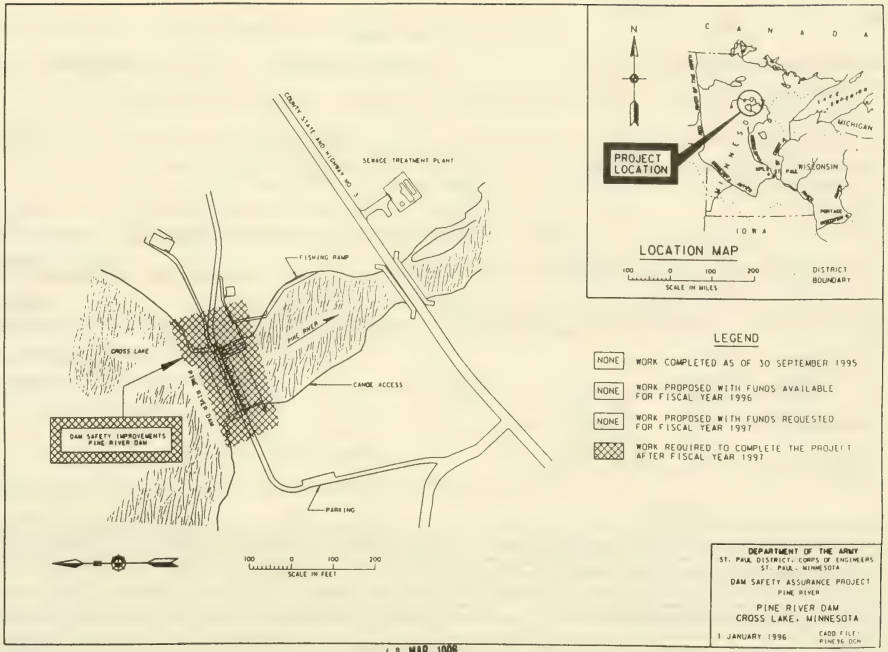
NON-FEDERAL COST: Not applicable.

STATUS OF LOCAL COOPERATION: Not applicable.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $14,600,000 is the initial estimate presented to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment will be prepared during the development of the Design Memorandum in FY 1996.

OTHER INFORMATION: Initial Construction General funds were provided in FY 1995.


SEWAGE TREATMENT PLANT
COUNTY STATE AND HIGHWAY NO. 1
FISHING RAMP
PINE RIVER
CROSS LAKE
CANOE ACCESS
PINE RIVER DAM
DAM SAFETY IMPROVEMENTS
PINE RIVER DAM
PARKING
100 0 100 200
SCALE IN FEET
N
C A N A D A
LAKE SUPERIOR
MICHIGAN
PROJECT LOCATION
MINNESOTA
WISCONSIN
IOWA
PORTAGE
LOCATION MAP
100 0 100 200
SCALE IN MILES
DISTRICT BOUNDARY
LEGEND
NONE WORK COMPLETED AS OF 30 SEPTEMBER 1995
NONE WORK PROPOSED WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996
NONE WORK PROPOSED WITH FUNDS REQUESTED FOR FISCAL YEAR 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997
DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
ST. PAUL, MINNESOTA
DAM SAFETY ASSURANCE PROJECT
PINE RIVER
PINE RIVER DAM
CROSS LAKE, MINNESOTA
1 JANUARY 1996
CADD FILE: PINE96.DGN

18 MAR 1996

APPROPRIATION TITLE: Construction, General - Shoreline Protection

PROJECT: Chicago Shoreline, Illinois (South Water Purification Plant Breakwater)(New)

LOCATION: The project is located in northeast Illinois on the southern shore of Lake Michigan within the City of Chicago.

DESCRIPTION: This project is a separable element of the Chicago Shoreline, IL project. The project provides for the reconstruction of a 2800 foot breakwater to protect the South Water Purification Plant near 78th street.

AUTHORIZATION: The project is budgeted for initiation of construction under proposed legislation.

REMAINING BENEFIT - REMAINING COST RATIO: 6.2 to 1 at 7 3/4 percent

TOTAL BENEFIT-COST RATIO: 6.2 to 1 at 7 3/4 percent

BASIS OF BENEFIT COST RATIO: Benefits are from the latest available evaluation approved in April 1994, at October 1993 price levels.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		$ 8,100,000
Estimated Non-Federal Cost		4,300,000
Cash Contributions	4,300,000	
Other Costs	0	
Total Estimated Project Cost		$ 12,400,000

STATUS: (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	0	Being Determined

PHYSICAL DATA	
Breakwater Reconstruction	2,800 feet

Division: North Central District: Chicago Chicago Shoreline, Illinois, (South Water Purification Plant)

18 MARCH 1996

23-577 96 – 25

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED COST
Allocations to 30 September 1995	$ 1,015,000	
Conference Allowance for FY 1996	0	
Allocation for FY 1996	0	
Allocations through FY 1996	1,015,000	13
Allocation Requested for FY 1997	1,300,000	29
Programmed Balance to Complete After FY 1997	5,785,000	
Unprogrammed Balance to Complete after FY 1997	0	

JUSTIFICATION: Over the past several years, significant degradation of the existing shore structures has occurred. Large sections of revetment have collapsed as a result of medium duration and intensity storm events. The rate of degradation is increasing, and short-term changes in sections are easily recognizable. The purification plant breakwater has collapsed to the point where visual gaps in the structure are noted. The breakwater protects the South Water Purification Plant, which services 2.5 million persons. When the breakwater ceases to provide any functional protection, the plant will be directly impacted by storm action.

Average annual benefits are as follows:

Annual Benefits		Amount
Storm Damage Prevention	$	7,802,712
Total	$	7,802,712

Division: North Central District: Chicago Chicago Shoreline, Illinois, (South Water Purification Plant)

18 MARCH 1996

FISCAL YEAR 1997: The requested amount of $1,300,000 will be applied as follows:

Initiate construction	$ 1,000,000
Engineering and Design	125,000
Construction Management	175,000
Total	$ 1,300,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts contained in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Costs
Pay 35 percent of the costs allocated to hurricane and storm damage reduction for the Federally Supportable Plan and bear all costs of operation, maintenance, repair, rehabilitation and replacement of hurricane and storm damage reduction facilities;	$4,300,000	$ 115,000
Total Non-Federal Costs	$4,300,000	$ 115,000

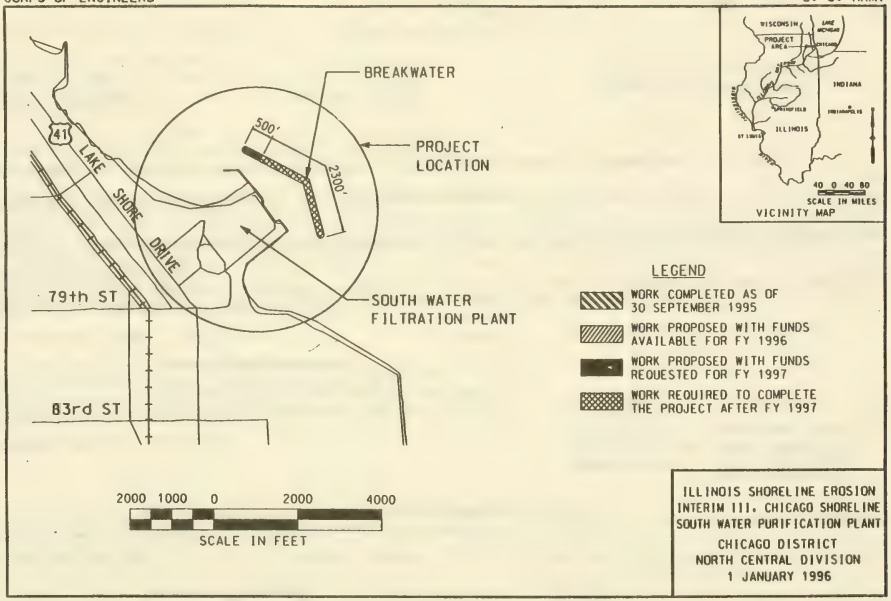
STATUS OF LOCAL COOPERATION: The City of Chicago will be the local sponsor for the project. By letter dated March 1, 1993 the City of Chicago indicated willingness to be the local sponsor. The Project Cooperation Agreement is scheduled to be executed in February 1997.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $8,100,000 is the initial estimate presented for the project.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Assessment was signed on July 3, 1993.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1992.

Division: North Central District: Chicago Chicago Shoreline, Illinois, (South Water Purification Plant)


BREAKWATER
PROJECT LOCATION
500'
2300'
41
LAKE SHORE DRIVE
79th ST
83rd ST
SOUTH WATER FILTRATION PLANT
2000 1000 0 2000 4000
SCALE IN FEET
LEGEND
WORK COMPLETED AS OF 30 SEPTEMBER 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997
ILLINOIS SHORELINE EROSION
INTERIM III. CHICAGO SHORELINE
SOUTH WATER PURIFICATION PLANT
CHICAGO DISTRICT
NORTH CENTRAL DIVISION
1 JANUARY 1996
WISCONSIN
LAKE MICHIGAN
PROJECT AREA
CHICAGO
INDIANA
SPRINGFIELD
INDIANAPOLIS
ILLINOIS
ST LOUIS
MISSISSIPPI
40 0 40 80
SCALE IN MILES
VICINITY MAP

770

APPROPRIATION TITLE: Construction General - Shoreline Protection

PROJECT: Presque Isle Peninsula, Pennsylvania (Permanent)(Continuing)

LOCATION: Presque Isle Peninsula is located in the city of Erie, Erie County, Pennsylvania, on the south shore of Lake Erie 78 miles southwest of Buffalo, New York and about 102 miles northeast of Cleveland, Ohio.

DESCRIPTION: The initial construction at Presque Isle State Park consisted of a system of 55 rubblemound breakwaters located offshore along the lakeward length of Presque Isle Peninsula and placement of approximately 560,000 tons of beach sand fill. Each breakwater is 150 feet long with a 350 foot gap between structures. The initial construction was completed in November 1992, but in order to maintain the beaches, a periodic nourishment program for 50 years following the initial project construction is required.

AUTHORIZATION: Water Resources Development Act of 1986 (Public Law 99-662)

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because initial construction has been completed.

TOTAL BENEFIT-COST RATIO: 1.26 to 1 at 8-7/8 percent.

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 8-7/8 percent (FY 1988)

BASIS OF BENEFIT-COST RATIO: Benefits based on the Phase II General Design Memorandum approved 27 July 1988 at January 1986 price levels.

SUMMARIZED FINANCIAL DATA:

Estimated Federal Cost		$ 63,035,000	
Programmed Construction		$63,035,000	
Initial Construction	$13,435,000		
Periodic Nourishment	49,600,000		

STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Initial Construction	100	Nov 1992
Periodic nourishment	6	Being Determined

Division: North Central

District: Buffalo

Presque Isle Peninsula, Pennsylvania (Permanent Project)

18 MARCH 1996

SUMMARIZED FINANCIAL DATA (Cont'd):

Estimated Non-Federal Cost			63,035,000	
Programmed Construction		63,035,000		
Initial Construction				
Cash Contribution	13,435,000		Other Costs (Lands)	0
Periodic Nourishment				
Cash Contribution	49,600,000			
Other Costs		0		
Total Estimated Project Cost			$126,070,000	
Initial Construction	26,870,000			
Periodic Nourishment	99,200,000			

		Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1995	14,644,000	
Conference Allowance for FY 1996	450,000	
Allocations for FY 1996	450,000 1/	
Allocations through FY 1996	15,094,000	24
Allocation Requested for FY 1997	485,000	25
Programmed Balance to Complete after FY 1997	47,456,000	
Unprogrammed Balance to Complete after FY 1997	0	

PHYSICAL DATA

Initial Construction:
55 Rubblemound Offshore Breakwaters.
560,000 Tons of Beach Replenishment.
Removal of some existing shore protection structures.

Periodic nourishment:
55,000 Tons of Beach Nourishment (Annually)

1/ Reflects $37,000 assigned as savings and slippage, and $37,000 reprogrammed to the project.

772

Division: North Central

District: Buffalo

Presque Isle Peninsula, Pennsylvania (Permanent Project)

18 MARCH 1996

JUSTIFICATION: That portion of the project referred to herein as the Initial Construction as detailed in the Phase II General Design Memorandum, which was approved on 27 July 1988 and being a system of segmented breakwaters, was completed in November 1992. The annual benefits identified in that Design Memorandum updated to current price levels are as follows:

Annual Benefits	Amount
Decreased Maintenance Cost	$ 167,000
Structural Damage Prevented	7,000
Land Loss Prevention	21,000
Decreased Dredging Costs	417,800
Decreased Nourishment Cost	2,608,700
Total	$ 3,221,500

FISCAL YEAR 1997: The requested amount of $485,000 will be applied as follows:

Place sand (Annual Nourishment)	$ 390,000
Planning, Engineering and Design	60,000
Construction Management	35,000
Total	$ 485,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Pay one-half of the separable costs allocated to recreation, including periodic nourishment, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of breakwater features.	$ 63,035,000	$ 67,000
Total Non-Federal Costs	$ 63,035,000	$ 67,000

The non-Federal sponsor has agreed to make all required payments concurrently with project construction and its share of periodic nourishment costs within the life of the project.

Division: North Central District: Buffalo Presque Isle Peninsula, Pennsylvania (Permanent Project)

STATUS OF LOCAL COOPERATION: The Local Cooperation Agreement was executed by the Assistant Secretary of the Army on 22 June 1989. The current non-Federal cost estimate of $63,035,000, is an increase of $3,108,000 from the non-Federal cost estimate of $59,927,000 based on changes in projected rates of inflation and reanalysis of requirements to reflect current and projected levels of expenditures. In a letter dated 3 October 1988, the non-Federal sponsor indicated that it is financially capable and willing to contribute the non-Federal share of the project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal Cost Estimate of $63,035,000 is an increase of $3,108,000 from the latest estimate ($59,927,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Price escalation on construction features and changes in projected inflation rates.	$ 558,000
Reanalysis of requirements	2,550,000
Total	$ 3,108,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with USEPA on 13 March 1981. The provisions of Section 404 of the Clean Water Act were met by the Public Notice issued on 9 October 1979, a Section 404(b)(1) Evaluation dated 21 December 1979, and a Section 401 Water Quality Certificate issued by the Commonwealth of Pennsylvania dated 8 August 1988. The Record of Decision which completed the NEPA process was signed by the Director of Civil Works on 2 November 1988.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1988 and funds to initiate construction were appropriated in FY 1989.

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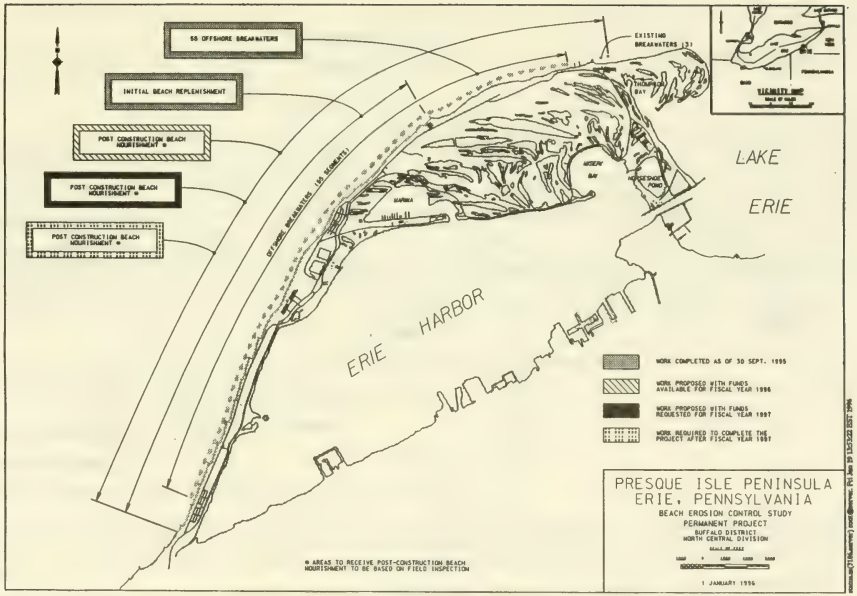

55 OFFSHORE BREAKWATERS
INITIAL BEACH REPLENISHMENT
POST CONSTRUCTION BEACH NOURISHMENT *
POST CONSTRUCTION BEACH NOURISHMENT *
POST CONSTRUCTION BEACH NOURISHMENT *
OFFSHORE BREAKWATERS (40 SEGMENTS)
EXISTING BREAKWATERS (3)
LAKE ERIE
ERIE HARBOR
WORK COMPLETED AS OF 30 SEPT. 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FISCAL YEAR 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997
* AREAS TO RECEIVE POST-CONSTRUCTION BEACH NOURISHMENT TO BE BASED ON FIELD INSPECTION
PRESQUE ISLE PENINSULA
ERIE, PENNSYLVANIA
BEACH EROSION CONTROL STUDY
PERMANENT PROJECT
BUFFALO DISTRICT
NORTH CENTRAL DIVISION
1 JANUARY 1996

18 MAR 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Loves Park, Illinois (Continuing)

LOCATION: Loves Park is located in Winnebago County in north central Illinois, just north of the city of Rockford.

DESCRIPTION: The project will provide 100-year protection for a highly urbanized portion of the city of Loves Park along Loves Park Creek. The project will divert excess runoff to detention areas. There, floodwaters will be stored until channel stages subside such that the floodwaters may be evacuated from the detention areas. The protective works include 17,900 lineal feet of improved channel, 3 detention lakes, and a pump station.

AUTHORIZATION: Water Resources Development Act of 1986 (Public Law 99-662).

REMAINING BENEFIT-REMAINING COST RATIO: 3.7 to 1 at 8-5/8 percent.

TOTAL BENEFIT-COST RATIO: 1.4 to 1 at 8-5/8 percent.

INITIAL BENEFIT-COST RATIO: 1.4 to 1 at 8-5/8 percent (FY 1990).

BASIS OF BENEFIT-COST RATIO: Analysis based on General Design Memorandum dated March 1988.

SUMMARIZED FINANCIAL DATA			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost		$ 18,300,000	
Estimated Non-Federal Cost		10,700,000	
Cash Contribution	1,480,000		
Other	9,220,000		
Total Estimated Project Cost		$ 29,000,000	
Allocations to 30 Sep 1995		$ 8,281,000	
Conference Allowance for FY 1996		750,000	
Allocation for FY 1996		688,000	1/
Allocations through FY 1996		8,969,000	49

STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	40	Being Determined

PHYSICAL DATA

Relocations: Bridges & Utilities
Channels: 17,900 feet
Pump Plants: 1

DIVISION: North Central

DISTRICT: Rock Island

Loves Park, Illinois

18 MARCH 1996

SUMMARIZED FINANCIAL DATA (Cont'd):

Allocation Requested for FY 1997	2,000,000	60
Programmed Balance to Complete after FY 1997	7,331,000	
Unprogrammed Balance to complete after FY 1997	0	

1/ Reflects $62,000 reduction assigned as Savings and Slippage.

JUSTIFICATION: The Loves Park Creek floodplain is dominated by residential neighborhoods, with some concentrations of industrial and commercial development. Flooding problems are caused by intense storms falling over the highly urbanized 7.8-square mile drainage basin of Loves Park Creek. Loves Park Creek, which bisects the city, has inadequate channel capacity and hydraulically inefficient bridges incapable of handling the amount of runoff produced by such storms (it is estimated that a 2-year flood would exceed existing channel capacity). Major floods along Loves Park Creek have been of a flash flood nature and of short duration (less than 1 day). Recent flooding occurred in April 1973, 1975, 1978, and June 1994. The flood of record occurred on April 20, 1973, with damage estimated at $2,780,000. Damages under present conditions of development are estimated at $8,380,000 at 1995 price levels. A 100-year flood would cause an estimated $18,500,000 in damage. Average annual damages caused by flooding along Loves Park Creek are estimated at $3,552,000 of which over 90 percent are attributable to residential damages. The annual damage and benefit calculations are based on the economic analysis included in the General Design Memorandum for Loves Park, IL, dated March 1988, approved November 1988, and revised September 1989.

FISCAL YEAR 1997: The requested amount of $2,000,000 will be applied as follows:

Initiate Revegetation	$ 53,000
Complete Stage IIB, Channels	806,000
Complete Stage IIA2, Channels	625,000
Lands and Damages Acquisition Expense	31,000
Planning, Engineering, and Design	206,000
Construction Management	279,000
Total	$2,000,000

NON-FEDERAL COSTS: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, and rights-of-way	$5,900,000 1/	
Modify or relocate buildings, utilities, roads bridges (except railroad bridges), and other facilities where necessary in the construction of the project	2,700,000	
In accordance with Assistant Secretary of Army (Civil Works) decision of 17 May 1988, the Government shall apply credit for external compatible work associated with the construction of the Pebble Creek Dam	439,000	
Provide services for Planning, Engineering and Design and Construction Management for relocation work	181,000	
Pay 5 percent of the cost allocated to flood control in cash to bring the total non-Federal share of flood control costs to 37 percent, and bear all cost of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities	1,480,000	$25,200
Total Non-Federal Cost	$10,700,000	$25,200

The Non-Federal sponsor has agreed to make required payments concurrently with project construction.

1/ Includes $60,000 in costs sunk by the local sponsor prior to construction.

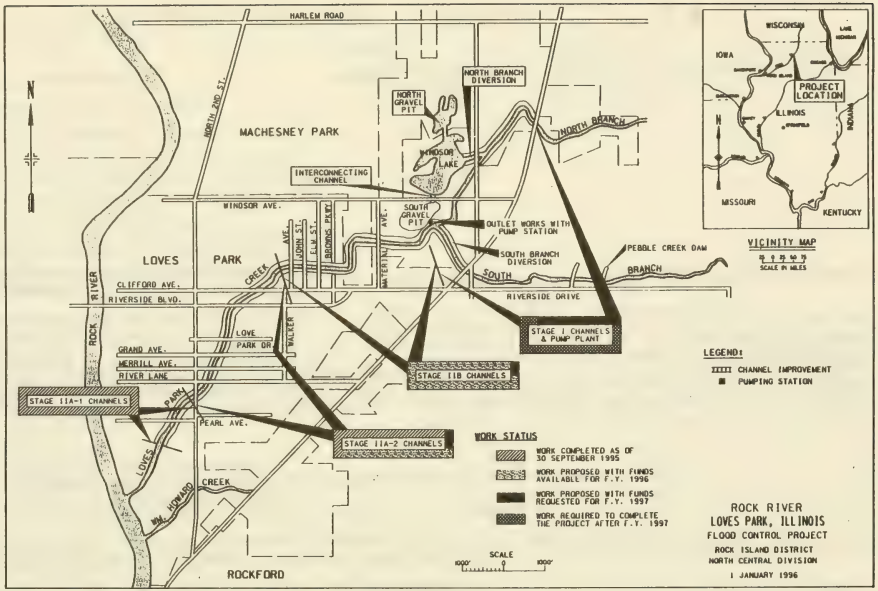
STATUS OF LOCAL COOPERATION: The city of Loves Park, Illinois, is the local sponsor for this project. The Local Cooperation Agreement was executed on 26 March 1991. The State of Illinois has executed an agreement with the city that provides for $3,550,000 in financial assistance for the project. The current non-Federal cost estimate of $10,700,000, which includes a cash contribution of $1,480,000, is an increase of $1,130,000 from the non-Federal cost estimate of $9,570,000 noted in the LCA, which included a cash contribution of $1,375,000. The non-Federal sponsor is financially capable and willing to contribute the increased non-Federal share.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal Cost Estimate of $18,300,000 is a decrease of $2,800,000 from the latest estimate ($21,100,000) presented to Congress (FY 1996). This change includes the following:

ITEM	AMOUNT
Price Escalation on Construction Features	$ -63,000
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	-2,737,000
Total	$-2,800,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (EIS) was approved by the Council on Environmental Quality on 14 March 1980. In 1985, an Environmental Assessment (EA) was coordinated to address changes to the project incorporated in the General Reevaluation Report, which resulted in a Finding of No Significant Impact (FONSI) that was signed in December 1986. An EA addressing further changes identified in the General Design Memorandum has been prepared and was released for Public Review on 17 July 1990. The review resulted in a FONSI, which was signed on 11 October 1991. With regard to Section 404 requirements, the project is covered under a nationwide permit, however, Section 401, State Certification, was required from the State of Illinois. Certification was received on 24 September 1990.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1985 and funds to initiate construction were appropriated in FY 1990.


HARLEM ROAD
NORTH 2ND ST.
MACHESNEY PARK
NORTH GRAVEL PIT
NORTH BRANCH DIVERSION
NORTH BRANCH
WINDSOR LAKE
INTERCONNECTING CHANNEL
WINDSOR AVE.
SOUTH GRAVEL PIT
OUTLET WORKS WITH PUMP STATION
SOUTH BRANCH DIVERSION
PEBBLE CREEK DAM
SOUTH BRANCH
LOVES PARK
CREEK
ALLGOOD ST.
ELM ST.
BROOKS PKWY
WATER TWR. AVE.
CLIFFORD AVE.
RIVERSIDE BLVD.
RIVERSIDE DRIVE
ROCK RIVER
LOVE PARK DR.
WALKER
GRAND AVE.
MERRILL AVE.
RIVER LANE
STAGE I CHANNELS & PUMP PLANT
STAGE IIB CHANNELS
STAGE IIA-1 CHANNELS
PARK
PEARL AVE.
STAGE IIA-2 CHANNELS
LOVES
CREEK
DR. HOWARD
ROCKFORD
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WISCONSIN
LAKE MICHIGAN
IOWA
PROJECT LOCATION
ILLINOIS
SPRINGFIELD
INDIANA
MISSOURI
KENTUCKY
VICINITY MAP
SCALE IN MILES
LEGEND:
CHANNEL IMPROVEMENT
PUMPING STATION
WORK STATUS
WORK COMPLETED AS OF 30 SEPTEMBER 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 1997
ROCK RIVER
LOVES PARK, ILLINOIS
FLOOD CONTROL PROJECT
ROCK ISLAND DISTRICT
NORTH CENTRAL DIVISION
1 JANUARY 1996

18 MAR 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: McCook and Thornton Reservoirs, Illinois (Continuing)

LOCATION: The project area covers 341 square miles of the combined sewer area in Chicago and 48 adjacent suburban communities.

DESCRIPTION: The authorized project consists of constructing two reservoirs in existing stone quarries located in McCook and Thornton, Illinois, having floodwater storage capacities of 32,100 and 14,600 acre-feet, respectively. Supporting facilities include connecting hydraulic structures, an aquifer protection system, and an aeration system. The reservoirs will serve as the terminus of the Metropolitan Water Reclamation District of Greater Chicago's TARP project (Tunnel and Reservoir Plan) Phase I tunnels. The TARP project is designed to control flooding due to sewer back-up. The McCook reservoir will control flooding on the Mainstream and Des Plaines Systems. The Thornton reservoir will control flooding on the Calumet System.

AUTHORIZATION: Water Resources Development Act of 1988 (Public Law 100-676).

REMAINING BENEFIT-REMAINING COST RATIO: 2.1 to 1 at 8-1/2 percent.

TOTAL BENEFIT-COST RATIO: 2.0 to 1 at 8-1/2 percent.

INITIAL BENEFIT-COST RATIO: 2.1 to 1 at 8-1/2 percent (FY 1994).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in January 1987 at October 1985 price levels.

SUMMARIZED FINANCIAL DATA			Status: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$ 450,000,000	McCook Reservoir	0	Being Determined
Estimated Non-Federal Cost		148,000,000	Thornton Reservoir	0	Being Determined
Cash Contributions	85,191,000				
Other Costs	62,809,000				
Total Estimated Project Cost		$ 598,000,000			

Division: North Central District: Chicago McCook and Thornton Reservoirs, Illinois

18 MARCH 1996

SUMMARIZED FINANCIAL DATA (Continued)		Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1995	$ 22,374,000	
Conference Allowance for FY 1996	0	
Allocation for FY 1996	0	
Allocations through FY 1996	22,374,000	0
Allocation Requested for FY 1997	0	0
Programmed Balance to Complete after FY 1997	427,626,000	
Unprogrammed Balance to Complete after FY 1997	0	

PHYSICAL DATA	
McCook Reservoir	
Storage Capacity	32,100 acre-feet
Thornton Reservoir	
Storage Capacity	14,600 acre-feet

JUSTIFICATION: The McCook and Thornton Reservoirs Project covers 341 square miles of the combined sewer area in Chicago and 48 adjacent suburban communities. Within this region, over 500,000 homes suffer flooding attributable to sewer outfall submergence caused by the inadequate capacity of the area watercourses. More than 170,000 structures are flooded to varying degrees on an average annual basis. Also the frequency of beach closures associated with backflows to Lake Michigan will be reduced. Average annual benefits are as follows:

Annual Benefits	Amount
Flood Damage Prevention	$ 75,555,426
Recreation	612,000
Water Quality	10,621,000
Water Supply	6,434,874
Total	$93,223,300

FISCAL YEAR 1997: The total program amount, including the requested and programmed carryover amounts of $0 and $6,655,000, respectively, will be applied as follows:

McCook Reservoir	
Real Estate Management	100,000
Planning, Engineering, and Design	5,951,000
Thornton Reservoir	
Planning, Engineering, and Design	604,000
Total	$ 6,655,000

Division: North Central District: Chicago McCook and Thornton Reservoirs, Illinois

18 MARCH 1996

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
McCook Reservoir:		
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	$56,018,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	3,798,000	
Pay 14 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	53,184,000	6,426,000
Total McCook Reservoir:	$113,000,000	$6,426,000
Thornton Reservoir:		
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	$ 8,797,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	828,000	
Pay 19 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	25,375,000	2,037,000
Total Thornton Reservoir	$ 35,000,000	$ 2,037,000
Total Non-Federal	$148,000,000	$ 8,463,000

The non-Federal sponsor has agreed to make all required payments concurrently with project construction.

Division: North Central District: Chicago McCook and Thornton Reservoirs, Illinois

18 MARCH 1996

STATUS OF LOCAL COOPERATION: The Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) will be the local sponsor for the project. The Project Cooperation Agreement has not been signed.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $450,000,000 is an increase of $34,000,000 from the latest estimate ($416,000,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ +34,000,000
Total	$ +34,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Finding of No Significant Impact for the authorized project was signed on December 5, 1986. An Environmental Impact Statement and the Supplemental Re-evaluation Report (EIS/SRR) for the McCook Reservoir project is scheduled to be completed in FY 1997.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1988. Funds to initiate construction were appropriated in FY 1994. There are five different reservoir alternatives: the Authorized Plan; two staged reservoir plans within the main lobe of the quarry; an underground reservoir plan beneath the MWRDGC sludge drying beds; and an open pit reservoir located at the sludge drying beds. The MWRDGC and Vulcan Materials Company continue to have general discussions, however negotiations are dependent upon completion of SRR/EIS.

SEPARABLE ELEMENT: McCook Reservoir, Illinois

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$339,000,000
Non-Federal Cost		$113,000,000
Cash Contributions	$ 59,816,000	
Other Costs	$ 53,184,000	
Total Estimated Project Cost		$452,000,000

REMAINING BENEFIT-REMAINING COST RATIO: 2.2 to 1 at 8-1/2 percent

TOTAL BENEFIT-COST RATIO: 2.1 to 1 at 8-1/2 percent

SEPARABLE ELEMENT: Thornton Reservoir, Illinois

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$111,000,000
Non-Federal Cost		$ 35,000,000
Cash Contributions	$25,375,000	
Other Costs	$ 9,625,000	
Total Estimated Project Cost		$146,000,000

REMAINING BENEFIT-REMAINING COST RATIO: 1.7 to 1 at 8-1/2 percent

TOTAL BENEFIT-COST RATIO: 1.7 to 1 at 8-1/2 percent

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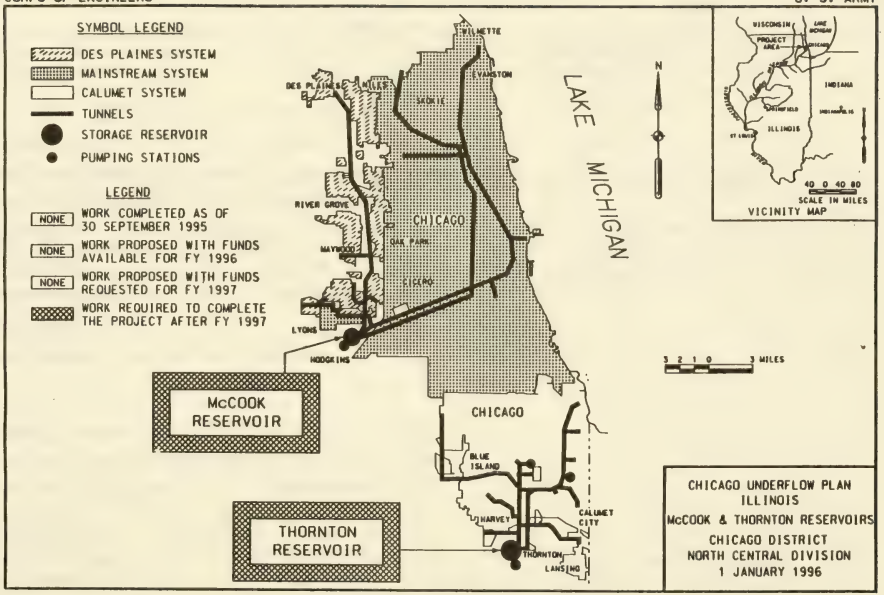


CHICAGO UNDERFLOW PLAN
ILLINOIS
McCOOK & THORNTON RESERVOIRS
CHICAGO DISTRICT
NORTH CENTRAL DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: O'Hare Reservoir, Illinois (Continuing)

LOCATION: The O'Hare Reservoir will be located northwest of the City of Chicago in an unincorporated portion of Elk Grove Township, Cook County, Illinois.

DESCRIPTION: The CUP O'Hare Reservoir is one of three reservoirs of the Chicagoland Underflow Plan. The project consists of a 1,050 acre-foot excavated reservoir, inflow/outflow structure, aeration system and washdown system. The O'Hare Reservoir will be an excavated reservoir that will provide an outlet for the existing TARP Phase I deep tunnels (O'Hare System) which will relieve flooding in portions of the communities of Arlington Heights, Des Plaines, and Mt. Prospect, IL.

AUTHORIZATION: Water Resources Development Act of 1986, PL 99-662.

REMAINING BENEFIT - REMAINING COST RATIO: 6.0 to 1 at 8-5/8 percent

TOTAL BENEFIT-COST RATIO: 1.06 to 1 at 8-5/8 percent

INITIAL BENEFIT-COST RATIO: 1.09 to 1 at 8-5/8 percent (FY 1990)

BASIS OF BENEFIT COST RATIO: Benefits developed in General Design Memorandum submitted in April 1990 at 1989 price levels.

787

SUMMARIZED FINANCIAL DATA		Accum. Pct. of Est. Fed. Cost	STATUS: (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$24,600,000	Relocations	100	Nov 1992
Estimated Non-Federal Cost		8,700,000	Floodway Control and Diversion Structures	60	Jul 1997
Cash Contributions	1,700,000				
Other Costs	7,000,000				
Total Estimated Project Cost		$33,300,000	Entire Project	65	Jul 1997

Allocations to 30 September 1995		18,882,000
Conference Allowance for FY 1996		0
Allocation for FY 1996	1/	3,800,000
Allocations through FY 1996		22,682,000

PHYSICAL DATA	
Storage Capacity	1,050 acre-feet
Inflow/outflow Structure	1
Monitoring Wells	4

SUMMARIZED FINANCIAL DATA (Cont'd):

Allocation Requested for FY 1997	1,918,000	100	Aeration System	8 Aerators
Programmed Balance to Complete after FY 1997	0		Washdown System	12 Hydrants and Mechanical Sweepers
Unprogrammed Balance to Complete after FY 1997	0			

1/ Reflects $3,800,000 reprogrammed to the project.

JUSTIFICATION: The O'Hare System is one of four combined sewer systems operated by the Metropolitan Water Reclamation District of Greater Chicago. The O'Hare System serves a highly urbanized area of 11.2 square miles in the communities of Arlington Heights, Des Plaines and Mt. Prospect, Illinois. Average annual flood damages in this area are estimated at $2,888,000. The most recent flood events for the project area occurred in September/October 1986 and August 1987. The flooding damages are attributable to sewer outfall submergence, due to the inadequate capacity of the area watercourses to carry peak flows under storm conditions. The average annual benefits are tabulated as follows:

Annual Benefits	Amount
Flood Damage Prevention	$ 1,795,800
Water Quality	201,500
Construction Related Benefits	290,200
Total	$ 2,287,500

FISCAL YEAR 1997: The requested amount of $1,918,000 will be applied as follows:

Complete Construction	$1,654,000
Planning, Engineering and Design	98,000
Construction Management	166,000
Total	$1,918,000

NON-FEDERAL COST: In accordance with the cost sharing and financing requirements contained in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation and Replacement Costs
Provide lands, easements, rights-of-way, Borrow material and spoil material disposal areas.	$4,500,000	0
Modify or relocate, utilities, roads bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	2,500,000	0
Pay 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance,repair, rehabilitation and replacement of flood control facilities.	1,700,000	0
Total Non-Federal First Costs	$8,700,000	$100,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

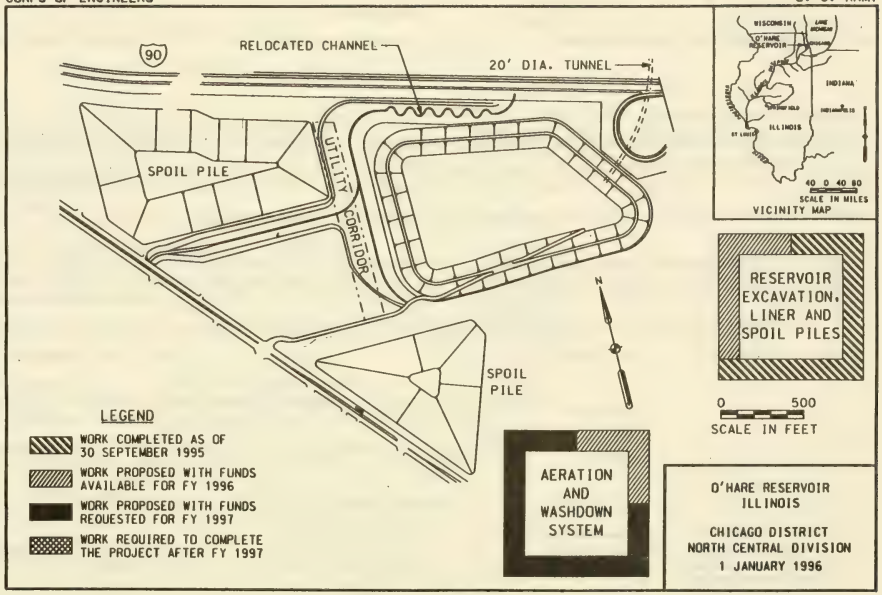
STATUS OF LOCAL COOPERATION: The Metropolitan Water Reclamation District of Greater Chicago is the local project sponsor. The Local Cooperation Agreement for the creek relocation was executed on July 30, 1990. A second Local Cooperation Agreement for the remainder of the project was executed on July 29, 1991. The current non-Federal cost estimate of $8,700,000 includes a cash contribution of $1,700,000.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $24,600,000 is the initial estimate presented to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Record of Decision was signed on 18 July 1990.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1987 and funds to initiate construction were appropriated in FY 1990.

CORPS OF ENGINEERS U. S. ARMY



APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Fort Wayne Metropolitan Area, Indiana, (Continuing)

LOCATION: The Fort Wayne Metropolitan Area is located in northeastern Indiana, in Allen County.

DESCRIPTION: The project would provide 54,000 feet of new or upgrade levees, floodwalls, and road closures along the St. Marys, St Joseph, and Maumee Rivers and Spy Run Creek. The project would provide 100-year level of flood protection and includes a recreational development plan of hiking/biking trails and complementary features.

AUTHORIZATION: Water Resources Development Act of 1990 (Public Law 101-640)

REMAINING BENEFIT-COST RATIO: 2.6 to 1 at 8 1/4 percent.

TOTAL BENEFIT-COST RATIO: 2.6 to 1 at 8 1/4 percent.

INITIAL BENEFIT-COST RATIO: 2.3 to 1 at 8 1/4 percent (FY 1994).

BASIS OF BENEFIT-COST RATIO: Benefits are from the General Design Memorandum, dated May 1993 (revised August 1993).

SUMMARIZED FINANCIAL DATA:		Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost		$ 33,866,000
Estimated Non-Federal Cost		10,872,000
Cash Contribution	3,941,000	
Other Costs	6,931,000	
Total Estimated Project Cost		$ 44,738,000
Allocations to 30 September 1995		4,885,000
Conference Allowance for FY 1996		4,000,000
Allocation for FY 1996		3,668,000 1/
Allocation through FY 1996		8,553,000 25
Allocation for FY 1997		7,000,000 46
Programmed Balance to Complete after FY 1997		18,313,000

STATUS: (1 JAN 96)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	2	Being Determined

PHYSICAL DATA

54,000 feet of levees, floodwalls, steel pile walls and road closures. Four miles of hiking/biking trails.

1/ Reflects $332,000 reduction assigned as savings and slippage.

Division: North Central District: Detroit Fort Wayne, Indiana

18 MARCH 1996

JUSTIFICATION: In the city of Fort Wayne, the St. Joseph and St. Marys Rivers join to form the Maumee River. Generally, crucial flood periods occur with heavy winter and spring rains coupled with snowmelt. The flood of record occurred in March 1913. About 5,000 acres within the city limits were covered with up to four feet of water. The Maumee River crested at 26.1 feet, eleven feet over the current flood stage of 15.0 feet. In all, 5,500 homes and businesses in the city suffered extensive damage, the municipal lighting power plant was flooded, six people died, and approximately 15,000 people were homeless. Total damage due to the flood was $4,800,000 which would be over $229,000,000 today. The flood of February 1982 ranks second to the flood of 1913 and caused over $62,400,000 in damages in today dollars. The Maumee River remained above flood stage for two weeks, cresting at 25.9 feet and affected about 1,800 residential structures and 184 businesses in the primary flood areas. The flood damaged approximately eight miles of levees in Fort Wayne. The most serious damage was to the Pemberton Dike, a 3,000 foot long levee, which protects a residential area. It was estimated that an additional $30,000,000 in damages would have occurred had the dike failed. The recommended project would provide approximately 54,000 linear feet of floodwall, levee, and slope protection along the Maumee, St. Marys, and St Joseph Rivers, and Spy Run Creek. Interior drainage improvements would be made as necessary. The project also includes a recreational development plan of hiking/biking trails and complimentary features. Average annual benefits are as follows:

Annual Benefits	Amount
Flood Damage Prevention	$8,328,900
Recreation	$ 346,500
Total	$8,675,400

FISCAL YEAR 1997: The requested amount of $7,000,000 will be applied as follows:

Continue Construction of Lower East Segment	$ 1,190,000
Continue Construction of Upper East Segment	2,780,000
Initiate Construction of Central Segment	1,660,000
Planning, Engineering, and Design	345,000
Construction Management	1,025,000
TOTAL	$ 7,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

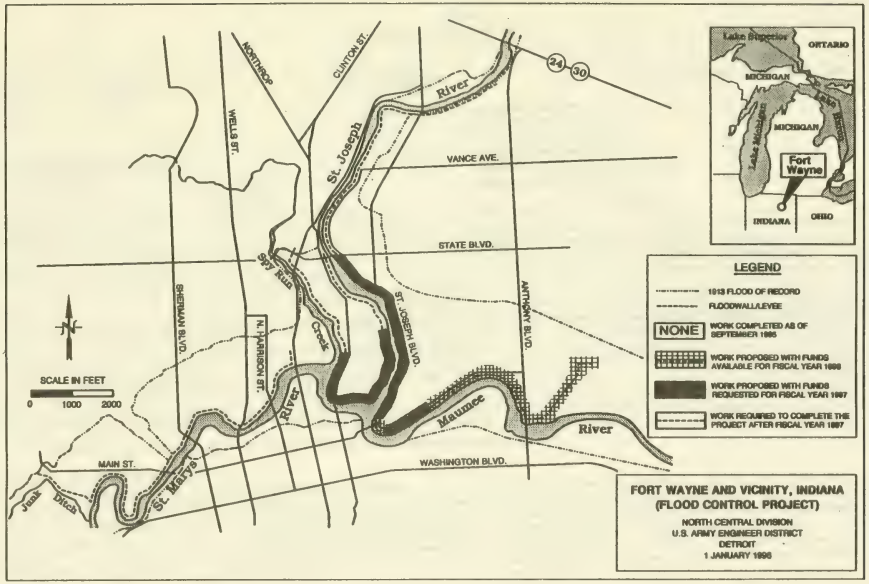
Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights of way, and borrow and excavated or dredge material disposal areas.	$ 4,840,000	0
Modify or relocate utilities, roads, bridges (except) railroad bridges), and other facilities, where necessary for the construction of the project.	$ 3,341,000	0
Pay 6.15 percent of the costs allocated to flood control to bring the total Non-Federal share of flood control costs to 25 percent as reduced for credit based on prior work (Section 104 of the Water Resources Act of 1986 or Section 215 of the Flood Control Act of 1968) and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	$ 2,185,000	$ 85,000
Pay one-half of the separable costs allocated to recreation and bear rehabilitation, and replacement of recreation facilities.	$ 506,000	0
Total Non-Federal Cost	$ 10,872,000	$ 85,000

STATUS OF LOCAL COOPERATION: The Project Cooperation Agreement was signed on 22 August 1994. The current non-Federal cost estimate is $10,872,000, which includes a cash contribution of $2,691,000. The local sponsors obtained $6.5 million of the non-Federal share through the sale of bonds in November 1994. The non-Federal sponsor is financially capable and willing to contribute the increased non-Federal share.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $ 33,866,000 is the same as that reported last year (FY 1996) to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (EIS) was filed with EPA in August 1988. An Environmental Assessment was completed with a Finding of No Significant Impact in August 1993. This project is in compliance with the Clean Water Act of 1977.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1988 and funds to initiate construction were appropriated in FY 1994.


NORTHROP
CLINTON ST.
WELLS ST.
St. Joseph
River
24
30
VANCE AVE.
STATE BLVD.
Spy Run
Creek
SHERMAN BLVD.
N. HARRISON ST.
ST. JOSEPH BLVD.
ANTHONY BLVD.
River
Maumee
River
SCALE IN FEET
0 1000 2000
MAIN ST.
WASHINGTON BLVD.
St. Marys
Junk
Ditch
Lake Superior
ONTARIO
MICHIGAN
Lake Michigan
Lake Huron
MICHIGAN
Fort Wayne
INDIANA
OHIO
LEGEND
1913 FLOOD OF RECORD
FLOODWALL/LEVEE
NONE
WORK COMPLETED AS OF SEPTEMBER 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FISCAL YEAR 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997
FORT WAYNE AND VICINITY, INDIANA
(FLOOD CONTROL PROJECT)
NORTH CENTRAL DIVISION
U.S. ARMY ENGINEER DISTRICT
DETROIT
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Little Calumet River, Indiana (Continuing)

LOCATION: The Little Calumet River Basin, Northwest Indiana, Lake County.

DESCRIPTION: The project consists of replacing 9.5 miles of existing spoil bank levees with 12.1 miles of new levees, floodwalls, and closure and appurtenant structures between the Illinois-Indiana State line and Cline Avenue in Gary, Indiana; constructing 9.7 miles of set-back levees and appurtenant drainage structures; installing a flow control structure at Hart Ditch; permanent evacuation of 37 structures in the Black Oak area of Gary, Indiana; construct a betterment levee from Cline to Clark; modifying 7 miles of channel with 3 accompanying bridge culvert modifications; modifying 1 highway bridge; constructing 16.8 miles of hiking/biking trails and accompanying recreation support facilities, and preserving 788 acres of wildlife habitat.

AUTHORIZATION: Water Resources Development Act of 1986 (Public Law 99-662).

REMAINING BENEFIT-REMAINING COST RATIO: 2.0 to 1 at 8-5/8 percent

TOTAL BENEFIT-COST RATIO: 1.4 to 1 at 8-5/8 percent

INITIAL BENEFIT-COST RATIO: 2.1 to 1 at 8-5/8 percent (FY 1990)

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in October 1994 at 1993 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$ 109,000,000
Estimated Non-Federal Cost		42,000,000
Cash Contributions	9,907,000	
Other Costs	32,093,000	
Total Estimated Project Cost		$ 151,000,000

STATUS: (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	28	Being Determined

PHYSICAL DATA

Levees and Floodwalls	21.8 miles
Pumping Plant Modifications	17
Structures Removed	37
Structures Floodproofed	53
Channel Modification	7 miles
Hiking Trails	16.8 miles

Division: North Central

District: Chicago

Little Calumet River, Indiana

18 MARCH 1996

SUMMARIZED FINANCIAL DATA (Continued)

			Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1995	$34,982,000		
Conference Allowance for FY 1996	5,000,000		
Allocation for FY 1996	5,035,000	1/	
Allocations through FY 1996	40,017,000		37
Allocation Requested for FY 1997	11,000,000		47
Programmed Balance to Complete After FY 1997	57,983,000		
Unprogrammed Balance to Complete after FY 1997	0		

1/ Reflects $415,000 reduction assigned as savings and slippage, and $450,000 reprogrammed to the project.

JUSTIFICATION: Overbank flood damages occur to 8,600 structures, primarily residential, along the Little Calumet River in Indiana within the communities of Hammond, Munster, Griffith and Gary. The total value of these structures is in excess of $775 million. Flood damages also occur to commercial and public buildings, golf courses and the transportation network. The major highway transportation link between the Chicago metropolitan area and the eastern United States, Interstate 80/94, is susceptible to closure beginning at a 40-to 50-year flood event. Average annual damages (October 1993 price levels) prevented are estimated at $15,642,000. The project will provide essentially a 200-year level of flood protection. An estimated $35 million in flood damages were incurred and one life lost in the November 1990 flood, the most recent significant flood event. The communities of Hammond, Highland and Munster, IN were inundated. The President declared the area inundated by the November 1990 flood a National Disaster Area on December 6, 1990. The State of Indiana continues to rate the flood damage potential along the Little Calumet River as the most severe in the state. The project avoids the short-and long-term adverse impacts associated with the destruction or modification of wetlands by designating the existing wetland areas in the Gary reach for overbank flood storage, a vital requirement of the hydraulic operation and design of the project, and hence required project lands. Environmental attributes are being mitigated for, as well as, enhanced along the river corridor.

Average annual benefits are as follows:

Annual Benefits	Amount
Flood Damage Prevention	$15,642,000
Recreation	743,000
Land Enhancement	2,222,000
Total	$18,607,000

FISCAL YEAR 1997: The requested amount of $11,000,000 will be applied as follows:

Continue Construction Stage II	4,171,000
Continue Construction Stage IV	2,189,000
Complete Construction of Recreation Support Area-East Reach	351,000
Complete E. Reach Landscaping	765,000
Initiate construction on East Reach Remediation	540,000
Complete Stage III drainage remediation	195,000
Real Estate Management	150,000
Planning, Engineering, and Design	1,659,000
Construction Management	980,000
Total	$11,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing requirements contained in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	$13,432,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project, which may be reduced for credit allowed based on prior work (Section 104 of the Water Resource Development Act of 1986) after reductions for such credit have been made in the required cash payments.	17,273,000	
Pay one-half the separable costs allocated to recreation and bear all costs of operation, maintenance, repair, rehabilitation and replacement of recreation facilities.	1,829,000	

Requirements of Local Cooperation (Continued)	Payment During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Costs
Pay 5 percent of the costs allocated to flood control (other than non-structural measures) and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	7,279,000	182,000
Pay 25 percent of the first cost allocated to non-structural flood control measures.	1,687,000	
Pay 25 percent of the costs allocated to fish and wildlife enhancement, and pay 25 percent of the costs of operation, maintenance, repair, rehabilitation and replacement of the fish and wildlife facilities.	500,000	
Total Non-Federal	$42,000,000	$ 182,000

STATUS OF LOCAL COOPERATION: The Little Calumet River Basin Development Commission is the local sponsor for the project. The Local Cooperation Agreement (LCA) was executed on August 16, 1990. The current non-Federal cost estimate of $42,000,000, which includes a cash contribution of $9,907,000, is an increase of $18,400,000 from the non-Federal cost estimate of $23,600,000 noted in the LCA, which included a cash contribution of $4,800,000. The non-Federal sponsor is financially capable and willing to contribute the non-Federal share. The local sponsor has received approval for Section 104 credits in the amount of $1,667,200.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $109,000,000 is an increase of $5,000,000 from the latest estimate ($104,000,000) presented to Congress (FY 1996). This change includes the following items:

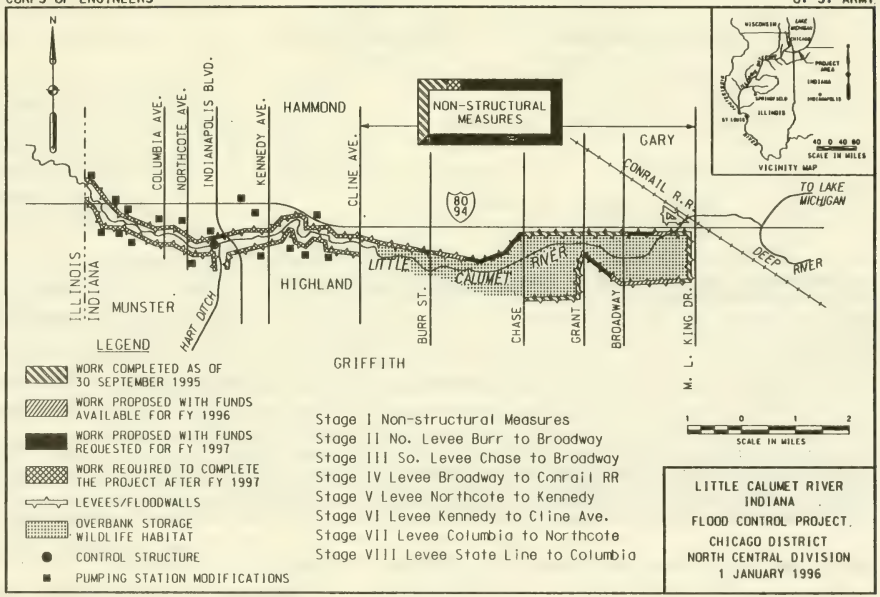
Item	Amount
Price Escalation on Construction Features	$ 1,321,000
Post Contract Award and Other Estimating Adjustments (Including contingency adjustments)	3,679,000
Total	$ 5,000,000

799

23-577 96 – 26

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final environmental impact statement (EIS) was filed with the United States Environmental Protection Agency on February 3, 1984. The Record of Decision was signed on July 13, 1990. Environmental Assessments (EA) were subsequently prepared addressing potential borrow and disposal sites which were not covered in the EIS and the three Findings of No Significant Impact which were signed by the District Engineer on May 9, 1990, July 11,1991 and April 21, 1992. A supplemental environmental impact statement was completed for the levee re-alignment, excavated ponding areas and new borrow sites. The Record of Decision was signed on June 23, 1995.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1984 and funds to initiate construction were appropriated in FY 1990. Fish and wildlife mitigation and enhancement costs for this project are estimated at $3,325,000.


N
COLUMBIA AVE.
NORTHCOTE AVE.
INDIANAPOLIS BLVD.
KENNEDY AVE.
HAMMOND
CLINE AVE.
NON-STRUCTURAL MEASURES
GARY
CONRAIL R.R.
TO LAKE MICHIGAN
80 94
ILLINOIS
INDIANA
MUNSTER
HART DITCH
HIGHLAND
LITTLE CALUMET RIVER
DEEP RIVER
BURR ST.
CHASE
GRANT
BROADWAY
M. L. KING DR.
GRIFFITH
VICINITY MAP
SCALE IN MILES
LEGEND
WORK COMPLETED AS OF 30 SEPTEMBER 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997
LEVEES/FLOODWALLS
OVERBANK STORAGE WILDLIFE HABITAT
CONTROL STRUCTURE
PUMPING STATION MODIFICATIONS
Stage I Non-structural Measures
Stage II No. Levee Burr to Broadway
Stage III So. Levee Chase to Broadway
Stage IV Levee Broadway to Conrail RR
Stage V Levee Northcote to Kennedy
Stage VI Levee Kennedy to Cline Ave.
Stage VII Levee Columbia to Northcote
Stage VIII Levee State Line to Columbia
SCALE IN MILES
LITTLE CALUMET RIVER
INDIANA
FLOOD CONTROL PROJECT
CHICAGO DISTRICT
NORTH CENTRAL DIVISION
1 JANUARY 1996

18 MAR 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Muscatine Island, Iowa (Continuing)

LOCATION: Muscatine Island lies on the west bank of the Mississippi River in Muscatine and Louisa Counties, Iowa, adjacent to the city of Muscatine, Iowa.

DESCRIPTION: Muscatine Island Levee District, the City of Muscatine, Iowa, and Muscatine-Louisa County Drainage District No. 13 form a joint drainage and flood protection area of 30,700 acres that is protected by 15.6 miles of existing sand and clay levee. The existing levee will be raised to increase the level of protection to a 200-year flood. The project consists of improving approximately 3 miles of existing sand levee with new rock shell construction, improving approximately 3 miles of existing sand levee in kind, constructing a railroad swing gate closure, improving drainage facilities, constructing ramps and approximately 600 feet of I-wall, and relocating existing utilities.

AUTHORIZATION: Water Resources Development Act of 1986 (Public Law 99-662).

REMAINING BENEFIT - REMAINING COST RATIO: 2.0 to 1 at 8 1/4 percent.

TOTAL BENEFIT-COST RATIO: 1.6 to 1 at 8 1/4 percent.

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 8 1/4 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are from economic reevaluation (August 1992 price levels) included in the Revised Design Memorandum dated August 1992 as revised during the comment period and approved 19 July 1994. Current economic evaluation includes credit for freeboard range of protection provided by existing levee.

SUMMARIZED FINANCIAL DATA			STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$ 6,540,000	Entire Project	0	Being Determined
Estimated Non-Federal Cost		2,180,000			
Cash Contributions	1,180,000				
Other Costs	1,000,000				
Total Estimated Project Cost		$8,720,000			

802

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST		PHYSICAL DATA		
				Relocations-Utilities	$530,000	
Allocations to 30 September 1995	$ 889,000				Avg. Height	Length
Conference Allowance for FY 1996	220,000					
Allocation for FY 1996	309,000		1/	Levees	1.5 feet raise	31,680 feet
Allocations through FY 1996	1,198,000	18		Floodwalls	2 feet	600 feet
				Railroad Closure: 1		
Allocation Requested for FY 1997	500,000	27				
Programmed Balance to Complete after FY 1997	4,842,000					
Unprogrammed Balance to Complete after FY 1997	0					

1/ Reflects $18,000 reduction assigned for savings and slippage, and $107,000 reprogrammed to the project.

JUSTIFICATION: Muscatine Island Levee District and Muscatine-Louisa County Drainage District No. 13, together with the city of Muscatine, Iowa, form a joint drainage and flood protection area for 30,700 acres. The area lies on the west bank of the Mississippi River in Muscatine and Louisa Counties and is adjacent to the city of Muscatine. The existing Federal flood control project encompasses an agricultural area and a portion of the city of Muscatine. The portion of Muscatine contains the municipal water and light plant, numerous commercial and industrial establishments, dwellings, and some undeveloped fringe areas. A small airport, railroad lines, and highways also lie within the protected area. The existing project was designed and built to provide protection against a flood having a 1-percent chance of being equaled or exceeded in any given year, a 100-year flood. The design was based upon data developed in the 1940's and approved in 1954. Development of recent flood data, high costs of massive emergency operations, seepage damage, and preventive evacuation have emphasized the need for additional protection. The existing levee is overbuilt on the downstream end and consequently does not have upstream superiority. A failure in the upstream end would be catastrophic for the city of Muscatine. Industrial damage would be severe, water and power would be lost for an indefinite time, and loss of life would be possible. Flooding has frequently threatened the Muscatine Island Levee District. The Flood of 1993 was approximately a 100-year frequency flood at Muscatine and was the flood of record. The levee withstood extensive seepage, however was not overtopped. During the 1965 flood, $1,196,000 ($5,953,500 in October 1995 prices) of damage was recorded for the Muscatine Island Levee District, $626,000 being flood-fighting costs and the remainder damage to crops, property, interior drainage, and other miscellaneous damages.

Average annual benefits are as follows:

ANNUAL BENEFITS	AMOUNT
Flood Control - Existing	$1,098,000
Flood Control - Future	77,700
Emergency Operations Savings	22,000
Total	$1,197,700

FISCAL YEAR 1997: The requested amount of $500,000 will be applied as follows:

Continue Stage I Construction	$ 180,000
Initiate Stage II Construction	92,000
Continue In-house Real Estate acquisition	15,000
Planning, Engineering, and Design	101,000
Construction Management	112,000
Total	$ 500,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperations	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, and rights-of-way	$ 430,000	
Modify or relocate, utilities, roads, and other facilities as necessary for construction of the project	570,000	

804

NON-FEDERAL COST (Cont'd):

Requirements of Local Cooperations	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Pay 14 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent with a minimum cash contribution of 5 percent of flood control costs and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities.	1,180,000	15,000
Total non-Federal First Cost	$2,180,000	

STATUS OF LOCAL COOPERATION: The Project Cooperation Agreement was executed on 21 September 1995. The local sponsor will be required to provide all lands, easements, rights-of way, modify or relocate buildings, utilities, roads, and other facilities necessary for construction, presently estimated at $1,000,000; make a cash contribution of $1,180,000.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $6,540,000 is a decrease of $100,000 from the latest estimate of $6,640,000 presented to Congress (FY 1996). This change includes the following items:

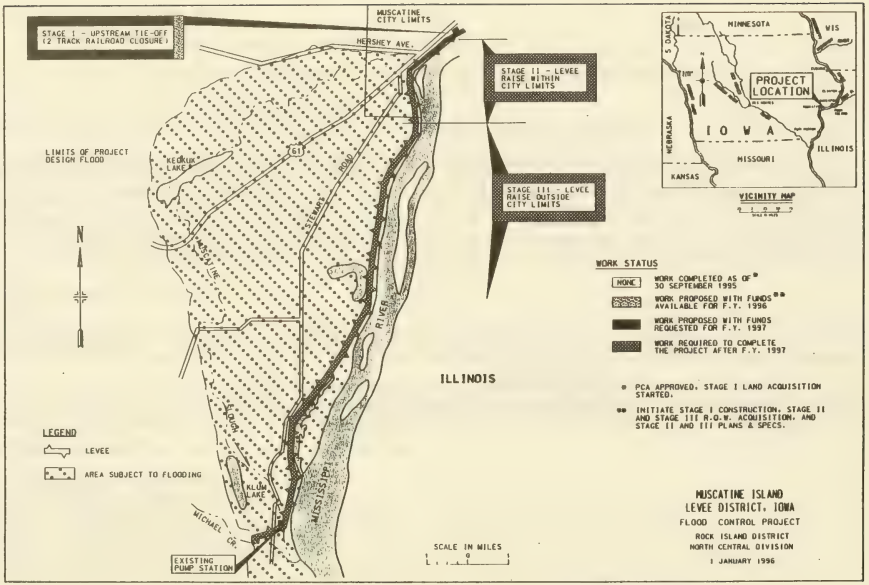
Item	Amount
Price Escalation on Construction Features	$-100,000
Total	$-100,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: During preparation of the Feasibility Report, a revised draft EIS was filed with the US EPA on 13 September 1985. The final EIS was filed with the US EPA on 23 June 1989 and the ROD signed on 10 October 1989. Section 401 Certification was received from the State of Iowa by letter dated 5 May 1986. A section 404 Public Notice was issued on 27 July 1989 and the Findings of Compliance Sections of the Section 404 (b) (1) Evaluation was signed on 30 August 1989. To address design changes developed during preparation of the Design Memorandum, an Environmental Assessment and Section 404 (b)(1) Evaluation have been prepared. The EA has been reviewed by the public. No significant impacts were identified, a Finding of No Significant Impact was signed by the District Commander in December 1994.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1987 and funds to initiate construction activities were appropriated in FY 1995.

Division: North Central District: Rock Island Muscatine Island, Iowa

18 MARCH 1996


STAGE I - UPSTREAM TIE-OFF (2 TRACK RAILROAD CLOSURE)
MUSCATINE CITY LIMITS
HERSHEY AVE.
STAGE II - LEVEE RAISE WITHIN CITY LIMITS
STAGE III - LEVEE RAISE OUTSIDE CITY LIMITS
LIMITS OF PROJECT DESIGN FLOOD
KEOKUK LAKE
61
STEWART ROAD
MUSCATINE
RIVER
ILLINOIS
LEGION
KLUM LAKE
MICHAEL CR.
MISSISSIPPI
EXISTING PUMP STATION
N
LEGEND
LEVEE
AREA SUBJECT TO FLOODING
SCALE IN MILES
MINNESOTA
WIS
S DAKOTA
PROJECT LOCATION
NEBRASKA
IOWA
ILLINOIS
MISSOURI
KANSAS
VICINITY MAP
WORK STATUS
NONE
WORK COMPLETED AS OF* 30 SEPTEMBER 1995
WORK PROPOSED WITH FUNDS** AVAILABLE FOR F.Y. 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 1997
* PCA APPROVED. STAGE I LAND ACQUISITION STARTED.
** INITIATE STAGE I CONSTRUCTION. STAGE II AND STAGE III R.O.W. ACQUISITION. AND STAGE II AND III PLANS & SPECS.
MUSCATINE ISLAND
LEVEE DISTRICT, IOWA
FLOOD CONTROL PROJECT
ROCK ISLAND DISTRICT
NORTH CENTRAL DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: West Des Moines-Des Moines, Iowa (Continuing)

LOCATION: West Des Moines and Des Moines, Iowa, are located in Polk County in central Iowa.

DESCRIPTION: The project will provide flood protection from the Raccoon River and Walnut Creek for approximately 900 urban acres for the cities of West Des Moines and Des Moines. The protection works includes 4 miles of new or improved levee, 1,850 lineal feet of concrete floodwall, 2 pumping stations, and recreation facilities. The project provides protection against the 100-year flood, which would cause an estimated $37.0 million in damage (1995 dollars).

AUTHORIZATION: Water Resources Development Act of 1986 (Public Law 99-662).

REMAINING BENEFIT-REMAINING COST RATIO: 6.6 to 1 at 8-7/8 percent.

TOTAL BENEFIT-COST RATIO: 2.1 to 1 at 8-7/8 percent.

INITIAL BENEFIT-COST RATIO: 2.0 to 1 at 8-7/8 percent (FY 1992).

BASIS OF BENEFIT-COST RATIO: The last detailed analysis for each benefit category is contained in the Design Memorandum approved in April 1991 at July 1990 price levels.

SUMMARIZED FINANCIAL DATA			STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$14,600,000	Entire Project	55	May 1997
Estimated Non-Federal Cost		5,100,000			
Cash Contributions	1,465,000				
Other Costs	3,635,000				
Total Estimated Project Cost		$19,700,000			

807

SUMMARIZED FINANCIAL DATA (Continued)

		Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1995	8,081,000	
Conference Allowance for FY 1996	4,040,000	
Allocation for FY 1996	3,705,000 1/	
Allocations through FY 1996	11,786,000	81
Allocation Requested for FY 1997	2,814,000	100
Programmed Balance to Complete after FY 1997	0	
Unprogrammed Balance to Complete after FY 1997	0	

PHYSICAL DATA

Relocations	$ 361,000	
	Height	Length
Levees	9 feet	20,550 feet
Floodwall	6 feet	1,850 feet
Pump Plant: 2		
Closure Structures: 7		
Gatewell Structures: 19		
Recreation Facilities: Bicycle Path with Ramps and Vista Boat Ramp with Parking Lot		

1/ Reflects $335,000 reduction assigned as Savings and Slippage.

JUSTIFICATION: The project will provide 100-year flood protection to the cities of West Des Moines and Des Moines, Iowa, from the Raccoon River and Walnut Creek. The urban area to be protected is approximately 900 acres, which includes 227 businesses, 904 residential structures, and 11 public structures. The maximum flood of record for the Raccoon River occurred in July 1993. Other flooding on the Raccoon River occurred in June 1990, July 1986, and March 1979. The July 1993 flood was approximately a 500-year event, causing serious commercial and residential damages. The maximum flood of record for Walnut Creek (approximately a 40-year event) occurred in May 1986 causing damage to 46 businesses and 220 homes. Damages under present conditions, based on estimates obtained from city officials, were in excess of $3,000,000. The most recent flooding for Walnut Creek occurred in August 1993, July 1993, June 1990, May 1986, and August 1975.
Average annual benefits are as follows:

ANNUAL BENEFITS		AMOUNT
Flood Control - Urban		$4,305,100
Existing	3,726,100	
Future	579,000	
Recreation		82,000
Total		$4,387,100

FISCAL YEAR 1997: The requested amount of $2,814,000 will be applied as follows:

Complete Construction (Stage II)	$ 331,000
Complete Construction (Stage IIIB)	2,151,000
Planning, Engineering, and Design	68,000
Construction Management	264,000
Total	$ 2,814,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsors must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, and rights-of-way.	$2,500,000	
Modify or relocate, utilities, highways railroads, bridges (other than railroad bridges and approaches) sewers, and other facilities. Provide road ramps, storm drainage facilities.	1,135,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of recreation facilities.	280,000	
Pay 7 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent and bear all cost of operation, maintenance, and replacement of flood control facilities	1,185,000	$35,000
Total Non-Federal Cost	$5,100,000	$35,000

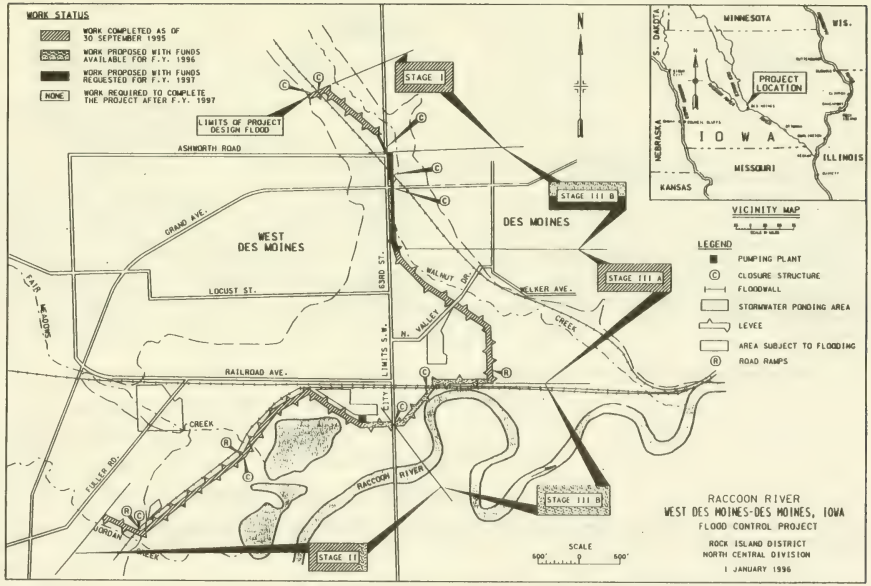
STATUS OF LOCAL COOPERATION: The cities of West Des Moines and Des Moines, Iowa, are the sponsors for this project. The Local Cooperation Agreement was signed by Assistant Secretary of Army for Civil Works on 27 August 1992. The current non-Federal cost estimate of $5,100,000, which includes a cash contribution of $1,465,000, is a decrease of $200,000 from the non-Federal cost estimate of $5,300,000 noted in the Local Cooperation Agreement, which included a cash contribution of $1,770,000. The non-Federal sponsor is financially capable and willing to participate in the project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $14,600,000 is a decrease of $700,000 over the latest estimate ($15,300,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$-126,000
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	-574,000
Total	$-700,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement (FEIS) was filed with the EPA on 20 July 1979. Supplement No. 1 to the FEIS was prepared for the General Reevaluation Report (GRR) with the draft filed on 7 April 1989, the final filed on 20 October 1989 and the ROD signed on 22 July 1990. During the preparation of the GRR no aspects of the project design which required processing under Sections 401 or 404 of the Clean Water Act were identified. An Environmental Assessment (EA) has been prepared to address design changes during the preparation of the Design Memorandum (DM). A Finding of No Significant Impact for this EA was signed on 13 November 1991. No design changes identified in the DM will require processing under Section 401 or 404 of the Clean Water Act.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1987 and funds to initiate construction were appropriated in FY 1992.



18 MAR 1996

811

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Chaska, Minnesota (Continuing)

LOCATION: Chaska is located in Carver County in south-central Minnesota on the Minnesota River, a tributary of the Mississippi River.

DESCRIPTION: The plan for flood control at Chaska, Minnesota, consists of a levee and interior drainage works along the Minnesota River, flood diversion channels on Chaska Creek and East Creek, and appropriate floodplain regulation measures.

AUTHORIZATION: Water Resources Development Act of 1976 (Public Law 94-587).

REMAINING BENEFIT-REMAINING COST RATIO: 4.8 to 1 at 8 7/8 percent.

TOTAL BENEFIT-COST RATIO: 0.77 to 1 at 8 7/8 percent.

INITIAL BENEFIT-COST RATIO: 1.05 to 1 at 8 7/8 percent (FY 1988).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in February 1984 at October 1983 price levels.

SUMMARIZED FINANCIAL DATA

			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost		$29,100,000	
Estimated Non-Federal Cost		12,500,000	
Cash Contribution	2,292,000		
Other	10,208,000		
Total Estimated Project Cost		$41,600,000	
Allocations to 30 September 1995		24,061,000	
Conference Allowance for FY 1996		3,740,000	
Allocation for FY 1996		3,430,000 1/	
Allocations through FY 1996		27,491,000	94
Allocation Requested for FY 1997		1,609,000	100
Programmed Balance to Complete after FY 1997		0	
Unprogrammed Balance to Complete after FY 1997		0	

STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	92	Dec 1996

1/Reflects $310,000 reduction assigned as savings and slippage.

DIVISION: North Central DISTRICT: St. Paul Chaska, Minnesota

18 MARCH 1996

PHYSICAL DATA

Fish and Wildlife Facilities:
Chaska Lake moist soil unit with Chaska Lake control structure.

Channels:

Diversion Channel	8,800 feet
Channel Improvement	1,500 feet

Levees:

New Levee	7,800 feet
Levee Improvement	5,800 feet

Pumping Plant:

Pumping Station	1

Recreation Facilities:

Recreation Trails	2.9 miles

JUSTIFICATION: The floodplain at Chaska consists of approximately 390 acres behind the existing Minnesota River levee and along Chaska and East Creeks. Over 540 residences, 47 businesses and industries, three public buildings, the city water supply and sanitary system, streets, roads, and public utilities are directly affected by flooding of the two creeks and the Minnesota River. Potential floods pose severe threats to the lives and security of the residents of Chaska. Run-off from snowmelt has caused two major floods in the past 28 years. In the spring of 1965, the flood of record caused damages estimated at $1,957,000. In 1969, another severe spring flood caused damages estimated at $1,088,000. Under current conditions and prices and without a successful flood fight, floods similar to those in 1965 and 1969 could cause damages estimated at $13,148,000 and $5,580,000, respectively. The proposed project would provide flood protection against a flood having an occurrence interval of about once in 100 years. This project would address flood control and recreational needs of this suburban metropolitan community. The average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$2,232,000
Recreation	28,000
Total	$2,260,000

FISCAL YEAR 1997: The requested amount of $1,609,000 will be applied as follows:

Complete construction of Stage 3 Improvements	1,034,000
Complete construction of Stage 3A Improvements	400,000
Planning, Engineering, and Design	73,000
Construction Management	102,000
Total	$1,609,000

DIVISION: North Central DISTRICT: St. Paul Chaska, Minnesota

18 MARCH 1996

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, and rights-of-way, and dredged material disposal areas.	$ 4,526,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	5,682,000	
Pay one-half of the separable costs allocated to recreation, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of recreation facilities.	185,000	$ 2,600
Pay 5 percent of the costs allocated to flood control in cash and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	2,107,000	32,800
Total Non-Federal Costs	$12,500,000	$35,400

The non-Federal sponsor has agreed to make all required payments concurrently with project construction.

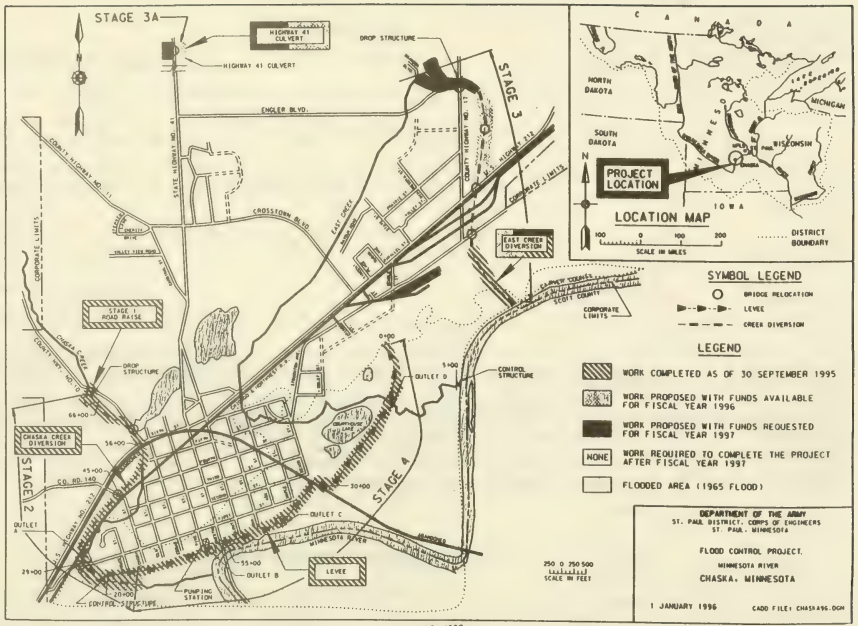
STATUS OF LOCAL COOPERATION: The Local Cooperation Agreement (LCA) was executed on 12 September 1988. The current non-Federal cost estimate of $12,500,000, which includes a cash contribution of $2,292,000, is an increase of $5,170,000 from the non-Federal cost estimate of $7,330,000 noted in the LCA, which included a cash contribution of $2,497,000. The non-Federal sponsor has sold $3,915,000 worth of bonds, has applied for a grant from the Small Cities Development Program and received financial assistance from the Minnesota Department of Natural Resources. The non-Federal sponsor is financially capable and willing to contribute the increased non-Federal share.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $29,100,000 is a decrease of $500,000 from the latest estimate ($29,600,000) presented to Congress (FY 1996). This change includes the following:

Item	Change
Price Escalation	$ -260,000
Post Contract Award and Other Estimating Adjustments (Including contingency adjustments)	-240,000
Total	$ -500,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Impact Statement (EIS) was filed with the Council on Environmental Quality in October 1976. An EIS Supplement to address provisions of the Clean Water Act has been prepared to accompany the Limited Reevaluation Report. The draft EIS Supplement was filed with the Environmental Protection Agency (EPA) on 21 May 1982. The Final Supplement was filed on 8 October 1982. A draft EIS Supplement No. 2, to address the change in location of the East Creek Diversion was prepared to accompany the General Design Memorandum and was filed with EPA in September 1984. The Final EIS for Supplement No. 2 was filed in May 1985.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1978 and funds to initiate construction were appropriated in FY 1988.


STAGE 3A
HIGHWAY 41 CULVERT
HIGHWAY 41 CULVERT
DROP STRUCTURE
STAGE 3
ENGLER BLVD.
COUNTY HIGHWAY NO. 11
STATE HIGHWAY NO. 41
CROSSTOWN BLVD.
EAST CREEK
EAST CREEK DIVERSION
CORPORATE LIMITS
STAGE 1 ROAD RAISE
DROP STRUCTURE
CHASKA CREEK
CHASKA CREEK DIVERSION
STAGE 2
CO. RD. 140
OUTLET A
OUTLET B
OUTLET C
OUTLET D
CONTROL STRUCTURE
STAGE 4
MINNESOTA RIVER
LEVEE
PUMPING STATION
CONTROL STRUCTURE
CANADA
NORTH DAKOTA
SOUTH DAKOTA
MICHIGAN
WISCONSIN
IOWA
PROJECT LOCATION
LOCATION MAP
SCALE IN MILES
DISTRICT BOUNDARY
SYMBOL LEGEND
BRIDGE RELOCATION
LEVEE
CREEK DIVERSION
LEGEND
WORK COMPLETED AS OF 30 SEPTEMBER 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FISCAL YEAR 1997
NONE
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997
FLOODED AREA (1965 FLOOD)
DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
ST. PAUL, MINNESOTA
FLOOD CONTROL PROJECT
MINNESOTA RIVER
CHASKA, MINNESOTA
1 JANUARY 1996
CADD FILE: CHASKA96.DGN
250 0 250 500
SCALE IN FEET

18 MAR 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Marshall, Minnesota (Continuing)

LOCATION: Marshall, Minnesota is located in Lyon County in southwestern Minnesota on the Redwood River, a tributary of the Mississippi River.

DESCRIPTION: The authorized plan for flood control at Marshall, Minnesota, eliminates the problems of the existing federally constructed flood control project by allowing the upstream and downstream channels to convey the design flow to and from the diversion channel without damaging overbank and backwater effects. The authorized plan consists of a total of 4.7 miles of additional levees, 3.8 miles of bank protection, 0.3 miles of new high-flow diversion channel, an interbasin overflow structure, modifications to the existing diversion and drop structures, and a recreation plan. The recreation plan consists of 2.5 miles of biking/walking trail, five miles of cross-country skiing/hiking trail, and related picnic and rest area facilities.

AUTHORIZATION: Water Resources Development Act of 1986 (Public Law 99-662) and Water Resources Development Act of 1988 (Public Law 100-676).

REMAINING BENEFIT-REMAINING COST RATIO: 1.4 to 1 at 8 percent.

TOTAL BENEFIT-COST RATIO: 1.3 to 1 at 8 percent.

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 8 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are from the Limited Reevaluation Report dated April 1993 at October 1992 price levels.

SUMMARIZED FINANCIAL DATA			Accum. Pct.of Est. Fed. Cost	STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$7,220,000				
Estimated Non-Federal Cost		2,760,000				
Cash Contribution	1,185,000					
Other	1,575,000			Entire Project	0	Being Determined
Total Estimated Project Cost		$9,980,000				
Allocations to 30 September 1995		603,000				
Conference Allowance for FY 1996		850,000				
Allocation for FY 1996		850,000				

DIVISION: North Central DISTRICT: St. Paul Marshall, Minnesota

18 MARCH 1996

SUMMARIZED FINANCIAL DATA (Cont'd):

Allocations through FY 1996	1,453,000	20
Allocation Requested for FY 1997	500,000	27
Programmed Balance to Complete after FY 1997	5,267,000	
Unprogrammed Balance to complete after FY 1997	0	

PHYSICAL DATA

Levees	4.7 miles	Road Raises	2
Bank Protection	3.8 miles	Ponding Area	7.6 acres
High-Flow Diversion Channel	0.3 mile	Recreation Facilities	2.5 miles hiking/ biking trails; 5 miles cross country skiing/ hiking trails
Interbasin Overflow Structure	3 gated, 10-foot by 9-foot conduits		
Diversion Structure Modification	3 slide gates and headwall height added		

JUSTIFICATION: A federally constructed flood control project was completed at Marshall in 1963. It protects much of Marshall during the frequent smaller floods. However, the upstream and downstream channels lack adequate capacity to convey the design flow to and from the diversion channel without damaging overbank and backwater effects. During major floods, upstream overflows overtop a county highway, bypass the diversion control structure, and flood the intercity area. An emergency barrier was constructed along the county highway to avert major damages during the 1969 flood. Legal claims resulting from floodwater retention and induced diversion of flow to the Cottonwood River resulted in payments by the City of $204,000 to affected property owners. A recurrence of the 1969 flood without emergency measures would cause damages of about $17,720,000 and flood about 1,137 residential, commercial and public buildings. The recommended plan would reduce average annual existing flood damages at Marshall by about 90 percent by the most economical means. Along with a need for increased flood protection, the City expressed a high priority need for a city-wide recreational trail system and associated facilities.

The average annual benefits are as follows:

Annual Benefits	Amount (1 October 1995)
Flood Control	$ 799,100
Recreation	171,300
Total	$ 970,400

FISCAL YEAR 1997: The requested amount of $500,000 will be applied as follows:

Continue construction of Stage 1 Improvements	$ 100,000
Real Estate Activities	20,000
Planning, Engineering and Design	350,000
Construction Management	30,000
Total	$ 500,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development act of 1986, the non-Federal sponsors must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, and rights-of-way, and dredged material disposal areas.	$ 954,000	
Modify or relocate building, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	148,000	
Pay one-half of the separable costs allocated to recreation, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of recreation facilities.	473,000	$ 3,400
Pay 12.7 percent of the costs allocated to flood control to bring the total non-Federal share to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities.	1,185,000	8,600
Total Non-Federal Costs	$2,760,000	$12,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

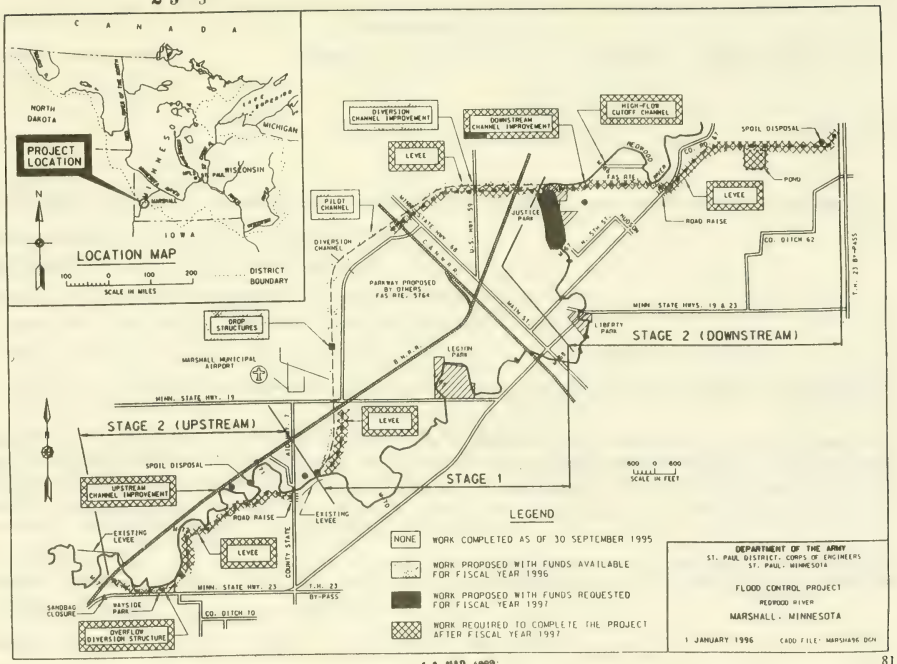
STATUS OF LOCAL COOPERATION: The Project Cooperation Agreement is scheduled to be executed in April 1996. By letter dated 14 April 1993, the City of Marshall, Minnesota indicated its willingness to participate financially in construction of the project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $7,220,000 is an increase of $280,000 over the latest estimate ($6,940,000) presented to Congress (FY 1994). This change includes the following item:

Item	Amount
Price Escalation on Construction Features	$+280,000
Total	$+280,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS was filed with EPA on 18 May 1981.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1984. The project was reauthorized in the 1988 Water Resources Development Act. Funds to initiate construction were appropriated in FY 1996.


CANADA
NORTH DAKOTA
PROJECT LOCATION
MINNESOTA
LAKE SUPERIOR
MICHIGAN
WISCONSIN
IOWA
MARSHALL
LOCATION MAP
SCALE IN MILES
DISTRICT BOUNDARY
DIVERSION CHANNEL IMPROVEMENT
DOWNSTREAM CHANNEL IMPROVEMENT
HIGH-FLOW CUTOFF CHANNEL
SPOIL DISPOSAL
LEVEE
POND
PILOT CHANNEL
DIVERSION CHANNEL
JUSTICE PARK
ROAD RAISE
CO. DITCH 62
T.H. 23 BY-PASS
PARKWAY PROPOSED BY DIMENT FAS RTE. 5764
MINN. STATE HWYS. 19 & 23
LIBERTY PARK
STAGE 2 (DOWNSTREAM)
DROP STRUCTURES
MARSHALL MUNICIPAL AIRPORT
LEGION PARK
MINN. STATE HWY. 19
STAGE 2 (UPSTREAM)
SPOIL DISPOSAL
UPSTREAM CHANNEL IMPROVEMENT
ROAD RAISE
EXISTING LEVEE
STAGE 1
COUNTY STATE
MINN. STATE HWY. 23
T.H. 23 BY-PASS
SANDBAG CLOSURE
WAYSIDE PARK
CO. DITCH 70
OVERFLOW DIVERSION STRUCTURE
SCALE IN FEET
LEGEND
NONE
WORK COMPLETED AS OF 30 SEPTEMBER 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FISCAL YEAR 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997
DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
ST. PAUL, MINNESOTA
FLOOD CONTROL PROJECT
REDWOOD RIVER
MARSHALL, MINNESOTA
1 JANUARY 1996
CADD FILE: MARSHA96.DGN

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Sheyenne River, North Dakota (Continuing)

LOCATION: The project is located in southeastern North Dakota along the Sheyenne River, from near Baldhill Dam downstream to the confluence with the Red River of the North. Parts of Griggs, Barnes, Ransom, Richland and Cass Counties are included in the project area.

DESCRIPTION: The project, as authorized, consists of (1) 12.7 miles of levee and a 6.8-mile flood diversion channel at West Fargo, (2) 7.4 miles of flood diversion channel and 14.8 miles of levees from Horace to West Fargo, (3) a 5-foot raise of the Baldhill Dam flood control pool, and (4) a dam and reservoir with approximately 35,000 acre-feet of storage for flood control on the Maple River. The plan, excluding the Maple River dam, would remove about 2,000 residences and farmsteads from the 100-year floodplain and reduce flood damages on more than 50,000 acres of agricultural land. Estimated damages caused by a one percent chance flood are $109 million. On an average annual basis, over $28 million in flood damages are estimated in the basin. Most of these damages occur in the West Fargo urban area.

Construction includes the West Fargo Unit ($13,950,000 Federal and $7,650,000 Non-Federal), the Horace to West Fargo Unit ($6,500,000 Federal and $2,200,000 Non-Federal), and the Baldhill Dam Unit ($11,780,000 Federal and $6,620,000 Non-Federal).

The Maple River Reservoir Unit has been deleted from the project due to lack of economic justification.

AUTHORIZATION: Water Resources Development Act of 1986 (Public Law 99-662).

REMAINING BENEFIT-REMAINING COST RATIO: 1.4 to 1 at 8 5/8 percent.

TOTAL BENEFIT-COST RATIO: 6.8 to 1 at 8 5/8 percent.

INITIAL BENEFIT-COST RATIO: 6.1 to 1 at 8 5/8 percent (FY 1989).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation (General Design Memorandum) dated March 1987 at October 1986 price levels.

SUMMARIZED FINANCIAL DATA

			Accum. Pct. of Est. Fed. Cost.
Estimated Federal Cost		$32,230,000	
Estimated Non-Federal Cost		16,470,000	
Cash Contributions	2,435,000		
Other Costs	14,035,000		
Total Estimated Project Cost		48,700,000 1/	
Allocations to 30 September 1995		21,299,000 2/	
Conference Allowance for FY 1996		500,000	
Allocation for FY 1996		459,000 3/	
Allocations through FY 1996		21,758,000	68
Allocation Requested for FY 1997		500,000	69
Programmed Balance to Complete After FY 1997		9,972,000	
Unprogrammed Balance to Complete after FY 1997		0	

STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
West Fargo Unit	100	Dec 1994
Horace to West Fargo Unit	100	Nov 1992
Baldhill Dam Unit	0	Being Determined
Total Project	67	Being Determined

1/ Excludes all costs associated with the Maple River Unit. The Maple River Unit has been reclassified as "inactive" due to lack of economic justification.

2/ Excludes $475,000 sunk cost for the Maple River Unit.

3/ Reflects $41,000 reduction assigned as savings and slippage.

PHYSICAL DATA

WEST FARGO UNIT:
- Earthen Levee 12.7 miles
- Flood Diversion Channel 6.8 miles

BALDHILL DAM UNIT:
- Flood Control Pool Raise 5-foot raise (by modifications to gates-not embankment)

HORACE TO WEST FARGO UNIT:
- Trapezoidal Excavated Channel 7.4 miles
- Earthen levees 14.8 miles

DIVISION: North Central DISTRICT: St. Paul Sheyenne River, North Dakota

18 MARCH 1996

JUSTIFICATION: The Sheyenne River, located in the southeastern portion of North Dakota, drains 7,140 square miles into the Red River of the North which flows northward to Lake Winnipeg in Manitoba, Canada. Recurrent flooding causes serious damage at the communities of Valley City, Lisbon, and West Fargo, and along the Sheyenne River. High Sheyenne River flows also aggravate downstream flooding along the Red River of the North. The maximum flood of record in 1882 inundated much of Valley City and Kindred. Over 100,000 acres of cropland in the basin were flooded by the Red River of the North and the Sheyenne, Wild Rice, and Maple Rivers. On 5 July 1975, the flood in the Sheyenne River basin crested at Kindred within 0.3 foot of the record flood, and the crest at West Fargo set a new record. Actual flood damages for this flood were $96,762,000 of which $2,132,000 were urban and $94,630,000 were rural. Urban flood damages of $14,159,000 were prevented due to emergency levee protection. The rural damages include cross-country (sheet flow) as well as over-bank flooding. In 1979, the Sheyenne River at West Fargo reached a flow of 3,500 cfs and a stage .03 foot less than the 1975 summer flood. Damages including the cost of successful flood fights were $7,388,000, of which $1,903,000 were urban, $4,676,000 agricultural, and $809,000 transportation. In July and August 1993, intense rainstorms over the Sheyenne, Maple and Rush River watersheds caused flood damages in many areas. In Valley City, an estimated $3 million in flood damages were incurred. In the Harwood area, just downstream from the West Fargo levees and diversion project, widespread agricultural and rural residential damages were sustained. Both the Horace and the West Fargo levees and diversion projects prevented substantial damages ($8 million and $36 million respectively) in their first year of operation. The average annual flood damages for the Sheyenne River basin from over-bank flooding over an assumed 100-year period at October 1994 price levels are estimated at $39,905,061, of which $37,506,749 are urban, $2,053,546 agricultural and $344,766 transportation. The recommended improvements will protect about 2,000 residences and farmsteads in the 100-year floodplain and reduce flood damages on over 50,000 acres of agricultural land. The average annual flood control benefits are $22,374,600.

FISCAL YEAR 1997: The requested amount of $500,000 will be applied as follows:

BALDHILL DAM UNIT (Pool Raise):		
	Planning, Engineering and Design	$ 500,000
	Total	$ 500,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Cost
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$ 7,891,000	
Modify or relocate utilities, roads, bridges, (except railroad bridges), and other facilities, where necessary for the construction of the project.	6,144,000	
Pay 5 percent of the costs allocated to flood control in cash and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities.	2,435,000	$70,800
Total Non-Federal	$16,470,000	

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The Southeast Cass Water Resource District is the local sponsor for the West Fargo Unit and the Horace to West Fargo Unit. The LCA for the West Fargo Unit was executed on 25 July 1988. The LCA for the Horace Unit was executed on 6 March 1990. Both of these units are scheduled to be turned over to Southeast Cass Water Resource District in 1996. In April 1994, the Sheyenne River Joint Water Resource District (WRD) was formed to act as the non-Federal sponsor for the flood control pool raise at the Baldhill Dam. The Joint WRD consists of eight member water resource districts, including both upstream and downstream representatives. Coordination is being conducted with the Joint WRD and with the North Dakota State Water Commission concerning a firm commitment to sponsorship of the flood pool raise. This will be addressed in the preparation of the GDM supplement that is now underway.

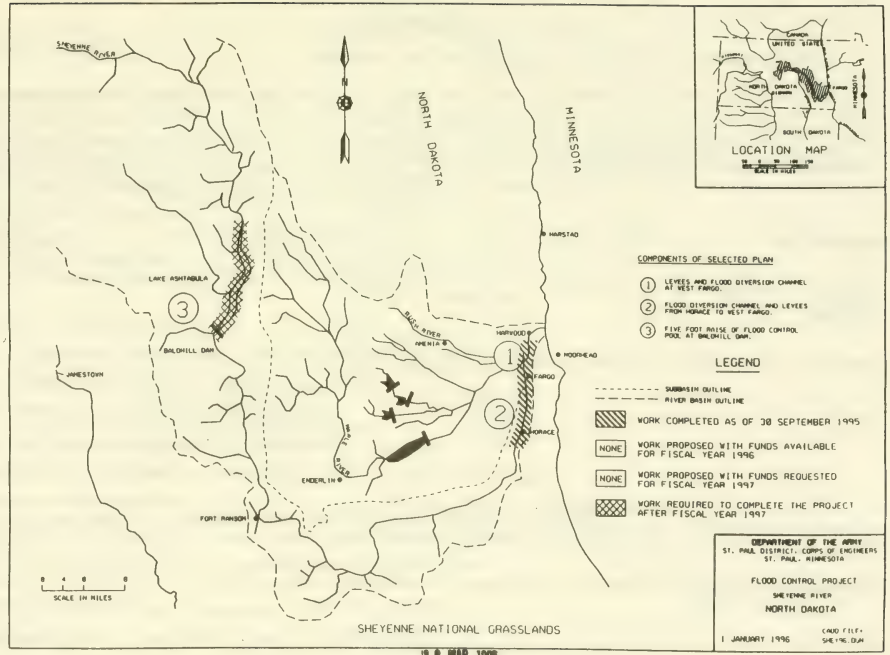
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $32,230,000 is an increase of $430,000 from the latest estimate ($31,800,000 1/) presented to Congress (FY 1995). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$+200,000
Post Contract Award and other Estimating Adjustments (including contingency adjustments)	+230,000
Total	$+430,000

1/ Excludes cost for the Maple River Reservoir Unit which has been reclassified to inactive status.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Draft Environmental Impact Statement was filed with the Environmental Protection Agency (EPA) on 28 May 1982. The final statement was filed with the EPA on 13 April 1984. The Record of Decision was signed on 6 June 1987.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1976 and funds to initiate construction were appropriated in FY 1990. No State or Federal agency expressed opposition to the project. However, a significant amount of opposition to the raise of the Baldhill Dam flood control pool was expressed by property owners around the lake, especially at the upper end of the lake. Much of the opposition expressed came from individuals and churches associated with the Cooperstown Bible Camp, a portion of which was identified to be purchased as a part of the raise of the flood pool, and from the Association for the Preservation of the Sheyenne River Valley which represents primarily landowners around and upstream of Lake Ashtabula. Several counties adjacent to and in the vicinity of Baldhill Dam have also expressed opposition to the raise of the flood control pool primarily because private property is to be acquired for the project. The formation of the Sheyenne River Joint Water Resource District to act as the non-Federal sponsor of the flood control pool raise is helping to improve communications between the downstream benefiting interests and the upstream interests who perceive themselves as adversely affected. Some people living north of West Fargo, in the Harwood area, have expressed dissatisfaction with the Horace and West Fargo diversion levee projects, claiming that their flooding has been worsened by these projects, both for the summer flood of 1993 and for potential future larger floods. A detailed analysis of the 1993 summer flood showed that the levee and diversion projects had no adverse effects on the areas downstream (north) of West Fargo.


SHEYENNE RIVER
NORTH DAKOTA
MINNESOTA
HARWOOD
ANEMIA
MOORHEAD
FARGO
HORACE
BUFFALO RIVER
ENDERLIN
FORT RANSOM
LAKE ASHTABULA
BALDHILL DAM
JAMESTOWN
SCALE IN MILES
SHEYENNE NATIONAL GRASSLANDS
LOCATION MAP
CANADA
UNITED STATES
NORTH DAKOTA
SOUTH DAKOTA
MINNESOTA
SCALE IN MILES
COMPONENTS OF SELECTED PLAN
1 LEVEES AND FLOOD DIVERSION CHANNEL AT WEST FARGO.
2 FLOOD DIVERSION CHANNEL AND LEVEES FROM HORACE TO WEST FARGO.
3 FIVE FOOT RAISE OF FLOOD CONTROL POOL AT BALDHILL DAM.
LEGEND
SUBBASIN OUTLINE
RIVER BASIN OUTLINE
WORK COMPLETED AS OF 30 SEPTEMBER 1995
NONE
WORK PROPOSED WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996
NONE
WORK PROPOSED WITH FUNDS REQUESTED FOR FISCAL YEAR 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997
DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
ST. PAUL, MINNESOTA
FLOOD CONTROL PROJECT
SHEYENNE RIVER
NORTH DAKOTA
1 JANUARY 1996
CADD FILE: SHE196.DGN

18 MAR 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Portage, Wisconsin (Continuing)

LOCATION: Portage is located in Columbia County in south central Wisconsin about 35 miles north of Madison on the Wisconsin River. The Wisconsin River is a tributary of the Mississippi River.

DESCRIPTION: The recommended project would provide protection against the 100-year flood and 98.9 percent protection against the 500 year flood. The plan includes improvements to 1.2 miles of the existing levee, 1.6 miles of new levee, one railroad closure, one sandbag highway closure, cultural mitigation and a recreational trail.

AUTHORIZATION: Water Resources Development Act of 1986 (Public Law 99-662).

REMAINING BENEFIT-REMAINING COST RATIO: 3.2 to 1 at 8 percent.

TOTAL BENEFIT-COST RATIO: 2.5 to 1 at 8 percent.

INITIAL BENEFIT-COST RATIO: 2.5 to 1 at 8 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are from the General Design Memorandum dated March 1993 at October 1992 price levels.

SUMMARIZED FINANCIAL DATA

			Accum. Pct. of Est. Fed. Cost	STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$ 6,620,000				
Estimated Non-Federal Cost		2,430,000				
Cash Contribution	1,319,000					
Other	1,111,000			Entire Project	0	Being Determined
Total Estimated Project Cost		$ 9,050,000				
Allocations to 30 September 1995		1,919,000				
Conference Allowance for FY 1996		250,000				
Allocation for FY 1996		229,000 1/		1/ Reflects $21,000 reduction assigned as savings and slippage.		
Allocations through FY 1996		2,148,000	32			
Allocation Requested for FY 1997		1,700,000	58			
Programmed Balance to Complete after FY 1997		2,772,000				

DIVISION: North Central DISTRICT: St. Paul Portage, Wisconsin

18 MARCH 1996

PHYSICAL DATA

Levee Improvements	2.9 miles	Recreation Facilities:	
		Trails	2.7 miles
		Expanded Riverside Park area	

JUSTIFICATION: Through the late 1800's and early 1900's, levees were built in an attempt to prevent the frequent flooding in the Portage area. However, the existing levees do not meet Corps of Engineers or Wisconsin Department of Natural Resources design standards. During recent floods, a large amount of seepage through the levees and extensive emergency operations have demonstrated the need for levee reconstruction. The potential exists for a very serious flood at Portage. The Fox River also runs through a portion of the city. In the 1800's, a lock and canal were built to provide a water connection between the two rivers for commercial navigation. Since the Fox River is several feet lower than the Wisconsin River at this point, any serious flooding on the latter poses a double hazard for the people who live along the canal and along the Fox River. The average annual benefits are as follows:

Annual Benefits	Amount (1 October 1995)
Flood Control	$1,532,000
Recreation	248,000
Total	$1,780,000

FISCAL YEAR 1997: The requested amount of $1,700,000 will be applied as follows:

Continue Construction	$ 1,448,000
Real Estate Activities	2,000
Planning, Engineering and Design	50,000
Construction Management	200,000
Total	$ 1,700,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsors must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, and rights-of-way, and borrow and excavated or dredged material disposal areas.	$ 777,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	334,000	
Pay one-half of the separable costs allocated to recreation, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of recreation facilities.	340,000	
Pay 11.7 percent of the costs allocated to flood control to bring the total non-Federal share to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities.	979,000	$22,000
Total Non-Federal Costs	$2,430,000	$22,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The Project Cooperation Agreement is scheduled to be executed in April 1996. The city passed a council resolution in June 1992 in support of the project and indicated its willingness to act as a local sponsor. The State of Wisconsin is coordinating with the city on local cost sharing arrangements for the project.

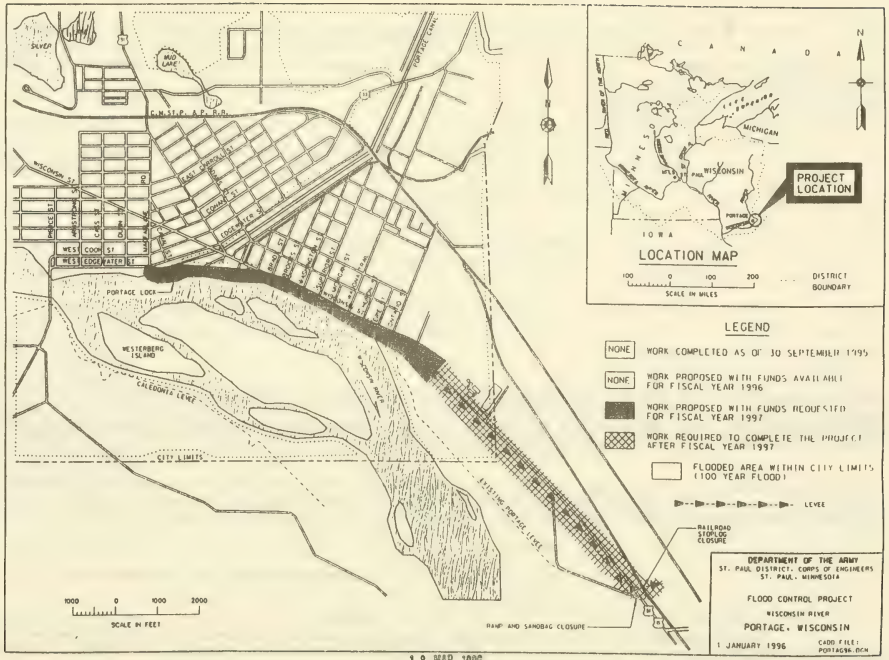
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $6,620 000 is an increase of $140,000 over the latest estimate ($6,480,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ + 720,000
Total	$ +720,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (EIS) including a Section 404(b)(1) Evaluation to Congress was filed with the Environmental Protection Agency on 9 January 1985. A supplement to the EIS has been prepared in conjunction with the General Design Memorandum and has undergone public review. A Record of Decision was signed on 7 June 1995.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1989 and funds to initiate construction were appropriated in FY 1996. Negotiations with the City of Portage are continuing in order to determine if the city is willing to fund, at 100 percent non-Federal cost, a betterment to raise the level of protection up to the 100 year level plus three feet of freeboard; this level of protection is required under the State of Wisconsin floodplain criteria.

129-577



18 MAR 1996

832

APPROPRIATION TITLE: Construction, General - Reservoirs (Flood Control)

PROJECT: Souris River Basin, North Dakota (Continuing)

LOCATION: On the Souris River in Ward, Renville, McHenry and Bottineau Counties in northwestern North Dakota and purchased flood control storage in Saskatchewan, Canada. The existing Lake Darling Dam, is located about 20 miles northwest of Minot, North Dakota. The project also includes features at the communities of Sawyer and Velva and at various locations along the 358-mile U.S. portion of the Souris River.

DESCRIPTION: The work under the current plan consists of purchased storage at two reservoirs in Saskatchewan, Canada (known as the Rafferty and Alameda projects); a modified outflow structure and dam safety improvements at Lake Darling Dam; a flood warning system; levee improvements at Sawyer, Renville County Park, and six subdivisions from Burlington to Minot, flood proofing of about 60 rural homes in the basin and the purchase of flowage easements in rural areas; modifications to dams 87 and 96 in the Upper Souris National Wildlife Refuge; and modifications to dams 320, 326, 332, 341 and 357 in the J. Clark Salyer National Wildlife Refuge. Channel and levee improvement work at Velva, North Dakota, is complete.

AUTHORIZATION: Water Resources Development Acts of 1986 (Public Law 99-662) and 1992 (Public Law 102-580).

REMAINING BENEFIT-REMAINING COST RATIO: 18.2 to 1 at 5 1/8 percent.

TOTAL BENEFIT-COST RATIO: 1.4 to 1 at 5 1/8 percent.

INITIAL BENEFIT-COST RATIO: 2.6 to 1 at 5 1/8 percent (FY 1982).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation as presented in the General Plan Report, dated July 1988 at October 1985 price levels.

SUMMARIZED FINANCIAL DATA

			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost		$113,300,000	
Corps of Engineers	$101,387,000		
Other Federal Agency	11,913,000		
Estimated Non-Federal Cost		8,180,000	
Cash Contribution	$ 5,740,000		
Other	2,440,000		
Total Estimated Project Cost		$121,480,000	
Allocations to 30 September 1995		$101,787,000	
Conference Allowance for FY 1996		0	
Allocation for FY 1996		-2,100,000 1/	
Allocations through FY 1996		99,687,000	99
Allocation Requested for FY 1997		1,700,000	100
Programmed Balance to Complete after FY 1997		0	

STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Velva Unit	100	Aug 1988
Reservoirs Unit	100	Oct 1997
Rafferty Dam	100	Dec 1991
Alameda Dam	100	Dec 1994
U.S. features	80	Being Determined
Entire Project	93	Being Determined

1/ Reflects excess funds to the FY96 needs.

PHYSICAL DATA

Flood Control Storage in Saskatchewan (for 100-yr flood):
- Rafferty Dam - 265,200 acre-feet
- Alameda Dam - 112,600 acre-feet

Flood Control Storage in the United States:
- Existing Lake Darling Dam - 105,600 acre-feet

Downstream Improvements:

Levees (Community):	8.1 miles
Channels	4.5 miles
Pumping Plants:	7
Rural Floodproofing	60 homes
Easements	4,000 acres

834

DIVISION: North Central DISTRICT: St. Paul Souris River Basin, North Dakota

18 MARCH 1996

JUSTIFICATION: Large floods originating primarily from snowmelt in the Canadian portion of the Souris River basin cause extensive damages and much human suffering and hardship in the basin. In 1980, the population of the entire Souris River basin in the United States totaled 95,000. The major population center in the basin is Minot, with a 1980 census of 32,886. Since 1936, Lake Darling Reservoir, operated by the U.S. Fish and Wildlife Service, has reduced flood damages by controlling several small floods. Because only minor floods occurred during an extended period following construction of the Lake Darling Dam, the problem of flooding became a matter of little concern for interests in the vicinity of Minot and numerous residential and commercial developments were constructed in the Souris River floodplain. The 1969 spring flood (25-year flood) greatly exceeded the available flood storage capacity of Lake Darling and caused damages, including flood-fight costs of about $10,900,000 at Minot and about $1,600,000 in the remainder of the Souris Valley. Without emergency measures, damages would have reached $19,300,000 in Minot. The flood inundated 3,000 homes and required evacuation of nearly 11,800 persons, approximately one-third of the population of Minot causing much human hardship. Again in 1970, heavy mid-April snowstorms created a serious flood threat. Through advance flood forecasts and timely actions generally in accordance with a flood emergency plan, a potential flood disaster in the Souris River Valley was averted. Nevertheless, urban and rural damages amounted to $2,700,000 including all flood fight costs. Damages without a flood fight would have amounted to $4,600,000. Another significant flood occurred in April 1976 (75 year flood) causing actual urban and agricultural damages of $15,300,000 including $6,500,000 for flood fight and cleanup costs at urban locations. The most recent flood occurred in May 1979. Damages for the main stem totaled $1,600,000. Damages prevented by emergency work amounted to $2,000,000. The Minot Channel Project prevented damages of $40,900,000. Estimated damages if equivalent floods occurred at the present time without the project in operation and without a flood fight would amount to about $97,050,000 for the 1969 flood, $22,617,000 for the 1970 flood, $95,311,000 for the 1975 flood, $184,237,000 for the 1976 flood, and $97,050,000 for the 1979 flood. Construction of the project will substantially reduce these damages. The average annual damages without the project are $11,121,000 compared to $3,860,000 with the project. The project includes work in Renville, Ward, McHenry and Bottineau Counties in North Dakota. Renville and McHenry Counties have been designated as redevelopment areas under Title IV of the Public Works and Economic Development Act of 1965 (Public Law 89-136).

The average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$6,909,000
Future Capital Cost-Savings	236,000
Total	$7,145,000

FISCAL YEAR 1997: The requested amount of $1,700,000 will be applied as follows:

Construction-Refuge Structures (Lake Darling Dam Flood Control, Dam Safety & Mitigation)	$ 776,000
House Acquisitions	604,000
Planning, Engineering, and Design	220,000
Construction Management	100,000
Total	$1,700,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, and rights-of-way, and dredged material disposal areas.	$1,542,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	556,000	
Provide 20 percent of total non-structural flood proofing costs for rural improvements.	342,000	
Pay 25 percent of the contribution to Canada which is in excess of $23,600,000 (adjusted per Section 105 of P.L. 100-202) for the Alameda and Rafferty Dams and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of the Burlington to Minot, Velva, Sawyer and Renville County Park levee improvements; the flood warning system, and the floodproofing of homes.	5,740,000	$58,000
Total Non-Federal Cost	$8,180,000	$58,000

The non-Federal sponsor has agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: By resolution dated 19 June 1969, the Ward County Water Management Board agreed to sponsor a channel improvement project at Minot and meet the local cooperation requirements for an overall flood protection plan. When the Lake Darling project was authorized, there was a recognized need for a joint board representing the counties affected by the project to serve as local sponsor. On 6 June 1983, the representatives of the water resource districts from Ward, Renville, McHenry, and Bottineau Counties and the Oak Creek drainage area agreed to become members of a Souris River Joint Water Resource Board for flood control, which would serve as local sponsor for the project. The Secretary of the Army recommended separating the Velva feature from the rest of the Lake Darling project, and a separate local cooperation agreement was signed on 20 November 1984. In August 1985, the Souris River Joint Water Resource Board provided a letter of intent to serve as the local sponsor for participation in the Souris River basin project. The local cooperation agreement for the remainder of the authorized project was signed on 24 October 1989. The local cooperation agreement was modified on 4 November 1992 to give the local sponsor credit for accomplishing "house raises" associated with nonstructural flood control project features.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $113,300,000 (Corps of Engineers and Fish and Wildlife) is a decrease of $7,100,000 from the latest estimate ($120,400,000) presented to Congress (FY 1995). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ -1,706,000
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	-5,394,000
Total	$ -7,100,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Impact Statement (EIS) reporting requirements were accomplished using the tiering principle. Initially, a generic (programmatic) EIS, showing basin-wide impacts of the project, and also including site specific documentation for the Velva levee feature, was prepared. This was followed by a site specific EIS for the 4-foot raise of the Lake Darling Dam design pool. The initial Draft Environmental Impact Statement was submitted to the Environmental Protection Agency and distributed for public review in October 1982. The final generic/Velva EIS was filed on 24 February 1984. The final Feature Environmental Impact Statement (Lake Darling Dam 4-foot raise) was filed on 14 February 1986. The Record of Decision (ROD) for the proposed 4-foot raise of Lake Darling and the related features was issued on 30 June 1986. A draft Environmental Impact Statement for the project as authorized by the Water Resources Development Act of 1986 (purchase of flood storage in Canada) was submitted to the Environmental Protection Agency on 16 November 1987. The final document was submitted to the Environmental Protection Agency in July 1988. Public Review of the document was completed in August 1988. The ROD and U.S. Fish and Wildlife Service Certificate of Compatibility were signed in October 1989.

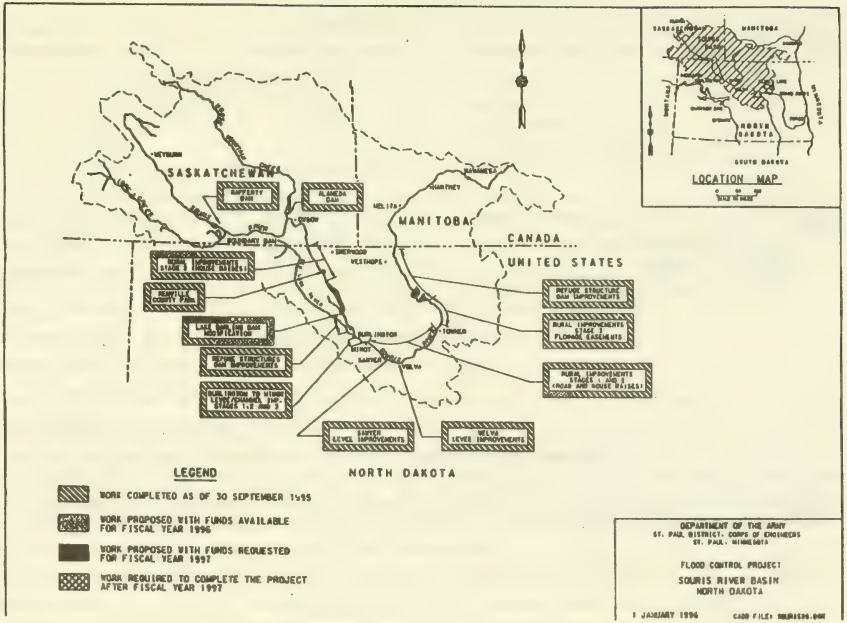
OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1970 and funds to initiate construction were appropriated in FY 1982.

The Lake Darling/Souris River Basin project is the second phase of the total flood control plan for the Souris Valley in North Dakota. The channel modification in Minot, which was authorized in the summer of 1970 and completed in 1979, was the first phase of construction. The Burlington Dam project was previously authorized as the second phase of the flood control plan in December 1970. However, due to the controversial nature of the Burlington Dam project, a scaled-down project was pursued by local interests. The resulting action was the authorization in the 1982 Energy and Water Development Appropriations Act, Public Law 97-88, to raise the pool at Lake Darling by approximately 4 feet and to implement upstream and downstream flood control measures. Features of this project were also included in the Burlington Dam plan; however, the Burlington Dam and Des Lacs River Diversion improvements have now been placed in a deferred status (the Senate Committee directed that the Corps take no further action to construct Burlington Dam until expressly directed to do so by the Committee). The Water Resources Development Act of 1986 authorized the Secretary of the Army to financially participate in the construction of Canadian reservoir projects providing flood control in the Souris River Basin. It also deauthorizes the construction of Burlington Dam and modifications at Lake Darling Dam to raise the level of the dam when the dam or dams in Canada are completed.

Construction of the Rafferty Dam was initiated in February 1988. An agreement between the Government of Canada and the Government of the United States of America for water supply and flood control in the Souris River Basin was signed on 26 October 1989. Rafferty Dam was physically complete in September 1991.

Construction on Alameda Dam was initiated in November 1990, and was complete in November 1994. U.S. payments to Canada totaled approximately $52.8 million.

The Memorandum of Understanding between the Department of the Interior and the Department of the Army regarding project work in the Upper Souris and J. Clark Salyer National Wildlife Refuges was completed and signed on 2 June 1989. A Memorandum of Understanding between the U.S. Fish and Wildlife Service and the Corps of Engineers for work at Lake Darling Dam was executed on 30 March 1993.


SASKATCHEWAN
MANITOBA
CANADA
UNITED STATES
NORTH DAKOTA
SOUTH DAKOTA
MONTANA
MINNESOTA
GAFFERTY DAM
ALAMEDA DAM
POPLARBY DAM
REMVILLE COUNTY FARM
LAKE WAPTON DAM MODIFICATION
REFUGE STRUCTURE DAM IMPROVEMENTS
RURAL IMPROVEMENTS FOR FLOODING EASEMENTS
RURAL IMPROVEMENTS ARGUS AND MOUSE RIVERS
LEVEE IMPROVEMENTS
WELWA LEVEE IMPROVEMENTS
LOCATION MAP
LEGEND
WORK COMPLETED AS OF 30 SEPTEMBER 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FISCAL YEAR 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997
DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
ST. PAUL, MINNESOTA
FLOOD CONTROL PROJECT
SOURIS RIVER BASIN
NORTH DAKOTA
1 JANUARY 1996

APPROPRIATION TITLE: Construction General - Dam Safety Assurance (Flood Control)

PROJECT: Homme Dam, South Branch Park River, North Dakota (Continuing)

LOCATION: Homme Dam is located in Walsh County in northeastern North Dakota, about two miles west of the city of Park River. The dam is on the South Branch of the Park River, at river mile 62.1 above the main stem's confluence with the Red River of the North. The drainage area above Homme Dam is 226 square miles.

DESCRIPTION: One of the principle features of the dam is a reinforced concrete flat-crested spillway and stilling basin located on the right abutment of the reservoir. The recommended plan increases the existing spillway capacity from 44% of the probable maximum flood (PMF) to 100 percent of the PMF. This was originally anticipated to be accomplished with a supplemental spillway within the dam embankment. Because of further investigation, the existing spillway was found to be unreliable and a new spillway with a capacity of 100 percent of the PMF is being proposed.

AUTHORIZATION: Flood Control Act of 1944.

REMAINING BENEFIT-REMAINING COST RATIO: No detailed economic analysis has been performed on this project.

TOTAL BENEFIT-COST RATIO: No detailed economic analysis has been performed on this project.

INITIAL BENEFIT-COST RATIO: No detailed economic analysis has been performed on this project.

BASIS OF BENEFIT-COST RATIO: No detailed economic analysis has been performed on this project.

SUMMARIZED FINANCIAL DATA		Accum. Pct. of Est. Fed. Cost	STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	$ 8,190,000				
Estimated Non-Federal Cost	56,000				
Total Estimated Project Cost	$ 8,246,000		Entire Project	0	Being Determined
Allocations to 30 September 1995	300,000				
Conference Allowance for FY 1996	200,000				
Allocation for FY 1996	483,000 1/		1/ Reflects $17,000 reduction assigned as savings and slippage and $300,000 reprogrammed to the project.		
Allocations through FY 1996	783,000	10			
Allocation Requested for FY 1997	450,000	15			
Programmed Balance to Complete after FY 1997	6,957,000				

DIVISION: North Central DISTRICT: St. Paul Homme Dam, South Branch Park River, North Dakota

18 MARCH 1996

JUSTIFICATION: This site has been identified as having inadequate spillway capacity that would result in the dam embankment being overtopped by about 2.3 feet during the probable maximum flood. The potential for loss of life associated with the probable maximum flood suggests that the dam needs modification.

FISCAL YEAR 1997: The requested amount of $450,000 will be applied as follows:

Planning, engineering, and design	$ 450,000
Total	$ 450,000

NON-FEDERAL COST: The local sponsor share is estimated to be $56,000.

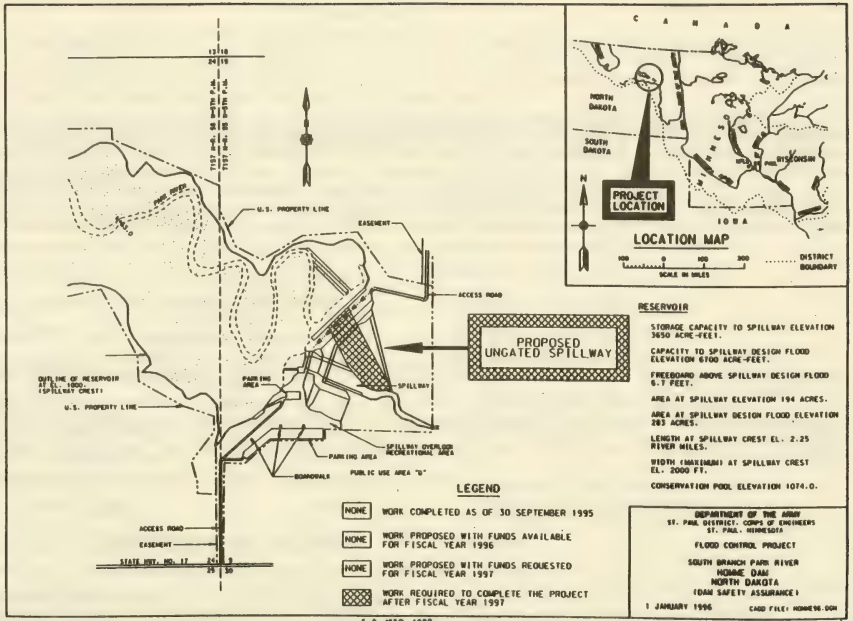
STATUS OF LOCAL COOPERATION: The Project Cooperation Agreement is scheduled to be executed in November 1996. The local sponsors for the original project were Park River and Grafton, North Dakota. Coordination has taken place with those two cities as well as the North Dakota Water Commission, Walsh county and the township. The state of North Dakota has stated support for the project and has indicated they will participate in the local financial responsibilities.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $8,190,000 is a decrease of $40,000 from the latest estimate ($8,230,000) presented to the Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ -40,000
Total	$ -40,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: Initial coordination has been completed with the North Dakota Department of Game and Fish and the U.S. Fish and Wildlife Service. Coordination will continue with these agencies and with the North Dakota Preservation Officer during the next study phase. The required NEPA environmental documentation will be included in the General Design Memorandum.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were provided in FY 1993 under the Operations and Maintenance appropriation. The Homme Lake Dam Safety reconnaissance report was approved 25 August 1994 by the Assistant Secretary of the Army (ASA) on 25 August 1994. Initial Construction General funds were provided in FY 1995.



18 MAR 1996

842

APPROPRIATION TITLE: Construction, General - Dam Safety Assurance (Flood Control)

PROJECT: Lake Ashtabula and Baldhill Dam, North Dakota (Dam Safety)(Continuing)

LOCATION: Baldhill Dam and Reservoir (Lake Ashtabula) are located in eastern North Dakota, about 75 miles west of Fargo and 9 miles northwest of Valley City. The dam is on the Sheyenne River, about 271 river miles upstream of the confluence of the Sheyenne River with the Red River of the North near Fargo. Flood control, water supply, pollution abatement, and recreation are the primary purposes of this project.

DESCRIPTION: The existing earthfill dam is 1,650 feet long and includes a concrete spillway section with three tainter gates. The impoundment capacity is 68,600 acre-feet. The 1982 reconnaissance study and the 1986 risk assessment study found that the existing spillway is not capable of handling a PMF (probable maximum flood). A general design memorandum completed in January 1987 recommended constructing an auxiliary spillway on the left abutment, retaining the existing spillway on the right abutment, constructing a 5-foot concrete parapet wall on top of the dam embankment, and stabilizing the slope on the right abutment. A subsequent value engineering study recommended the auxiliary spillway be ungated and be placed over the existing embankment instead of gated and in the left abutment. This value engineered plan is described in Supplement 1 to General Design Memorandum, Baldhill Dam and Reservoir, dated December 1988. The Feature Design Memorandum on the ungated auxiliary spillway and repair of the existing gated spillway was prepared in April 1993. The revised auxiliary spillway comprises an 880 foot wide broad crest weir located in an excavated section of the dam embankment, a downstream flexible slab, and a rigid chute and downstream apron. Repairs to the existing spillway are also recommended. The ungated auxiliary spillway work will be accomplished under the Dam Safety authority. The repair of the existing spillway will be accomplished under both the Dam Safety and the Major Rehabilitation authorities.

AUTHORIZATION: Flood Control Act of 1944.

REMAINING BENEFIT-REMAINING COST RATIO: 5.8 to 1 at 8 1/2 percent.

TOTAL BENEFIT-COST RATIO: 2.3 to 1 at 8 1/2 percent.

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 8 1/2 percent (FY 1988).

BASIS OF BENEFIT-COST RATIO: The benefit-cost ratio is based on current cost estimates as presented in the April 1993 Feature Design Memorandum which have been deflated to October 1986 price levels, and benefits as presented in Supplement 1 to GDM for Baldhill Dam and Reservoir, dated December 1988. The cost estimates used are the total of both the Dam Safety and the Major Rehabilitation work.

SUMMARIZED FINANCIAL DATA

		Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost (Dam Safety)	$15,800,000	
Estimated Non-Federal Cost	280,000	
Total Estimated Project Cost	$16,080,000 1/	
Allocations to 30 September 1995	$10,718,000	
Conference Allowance for FY 1996	4,700,000	
Allocation for FY 1996	1,028,000 2/	
Allocations through FY 1996	11,746,000	74
Allocation Requested for FY 1997	1,450,000	84
Scheduled Balance to complete after FY 1997	2,604,000	
Unscheduled Balance to Complete after FY 1997	0	

1/ The estimated total project cost for both the Major Rehabilitation and the Dam Safety work is $23,080,000. Funding for the project under Major Rehabilitation should be accomplished concurrently with the Dam Safety funding.

2/ Reflects $390,000 reduction assigned as savings and slippage and $3,282,000 reprogrammed from the project in FY 96.

STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	45	Being Determined

PHYSICAL DATA

Dams:

Spillway (ungated auxiliary) 880 LF (crest)

844

DIVISION: North Central

DISTRICT: St. Paul

Lake Ashtabula and Baldhill Dam, North Dakota (Dam Safety)

18 MARCH 1996

JUSTIFICATION: In 1892, 1897, 1916 and 1919, the Sheyenne River overflowed its banks causing significant damage. During the 1930's, the basin experienced a serious drought and many river towns lost their water supplies. Caught between these two extremes in water levels, the residents of the basin asked for help. A flood control and water supply project was proposed. Baldhill Dam was constructed and formally dedicated on September 21, 1952. Baldhill Dam has been classified as a large, high hazard dam according to the criteria and guidelines established by the National Program for the Inspection of Dams. The dam is in a long, narrow valley above Valley City, North Dakota (1980 population - 7,771). The dam was designed to create an impoundment with a capacity of 68,600 acre-feet to control runoff from an effective drainage area of 1,988 square miles. It provides a substantial degree of flood control to the cities, villages, and urban areas along the Sheyenne River below the dam. In its present condition, Baldhill Dam has inadequate spillway capacity to pass the probable maximum flood (PMF) and is therefore subject to overtopping. The existing spillway has a capacity of only 43,100 cfs. The capacity needed to pass the PMF is 126,000 cfs. Overtopping endangers the integrity of the embankment at extremely high flows. If the dam failed, a very destructive surge of water would rush down the valley taking about 4 to 6 hours to reach Valley City. At its worst, the flood would inundate about 75 percent of Valley City to some extent, including many of the facilities normally available for emergency shelter. The proposed plan is to construct an auxiliary spillway which will provide the additional discharge capacity required to pass the PMF and to repair the existing gated spillway to make it reliable for passing the original design flows as well as a portion of the higher flows of the revised PMF.

Annual Benefits	Amount
Flood Control	$1,615,800
Recreation	1,483,000
Water Supply	1,689,000
Total	$4,787,800

FISCAL YEAR 1997: The requested amount of $1,450,000 will be applied as follows:

Continue construction of Stage 2	$1,210,000
Planning, Engineering and Design	170,000
Construction Management	70,000
Total	$1,450,000

845

DIVISION: North Central DISTRICT: St. Paul Lake Ashtabula and Baldhill Dam, North Dakota (Dam Safety)

NON-FEDERAL COST: Consistent with the cost-sharing guidelines for Dam safety projects local interests will be required to make a cash contribution of 15 percent of the dam safety modification costs in accordance with the cost sharing for the project at the time of initial project construction. This results in a non-Federal share of 1.744% of the total Dam Safety cost presently estimated at $280,000.

STATUS OF LOCAL COOPERATION: The Project Cooperation Agreement (PCA), with the North Dakota State Water Commission, was executed on 14 January 1994. The current non-Federal cost estimate of $280,000 is a decrease of $39,000 from the non-Federal cost estimate of $319,000 noted in the PCA.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $15,800,000 is a decrease of $2,200,000 from the latest estimate ($18,000,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ + 450,000
Post Contract Award and other Estimating Adjustments (including contingency adjustments)	-2,650,000
Total	$ -2,200,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS on the GDM was filed with EPA on 5 August 1988. The Record of Decision for the Final EIS on the GDM was signed on 25 April 1989. An Environmental Assessment for the GDM Supplement was prepared in December 1988. A Finding of No Significant Impact on the GDM Supplement was signed on 21 November 1989.

OTHER INFORMATION: The recommended overall plan for major rehabilitation and dam safety is to increase the spillway capacity at Baldhill Dam to provide the capability of discharging PMF (Probable Maximum Flood) flows. This will be accomplished by constructing an 880 foot long auxiliary ungated broad crest weir spillway located in an excavated section of the dam embankment, including a downstream flexible slab and a rigid chute and downstream apron, and the repair and modification of the existing gated spillway. The dam safety and the major rehabilitation modifications are both integral parts of the total package and need to be funded, designed, and constructed as one unit.

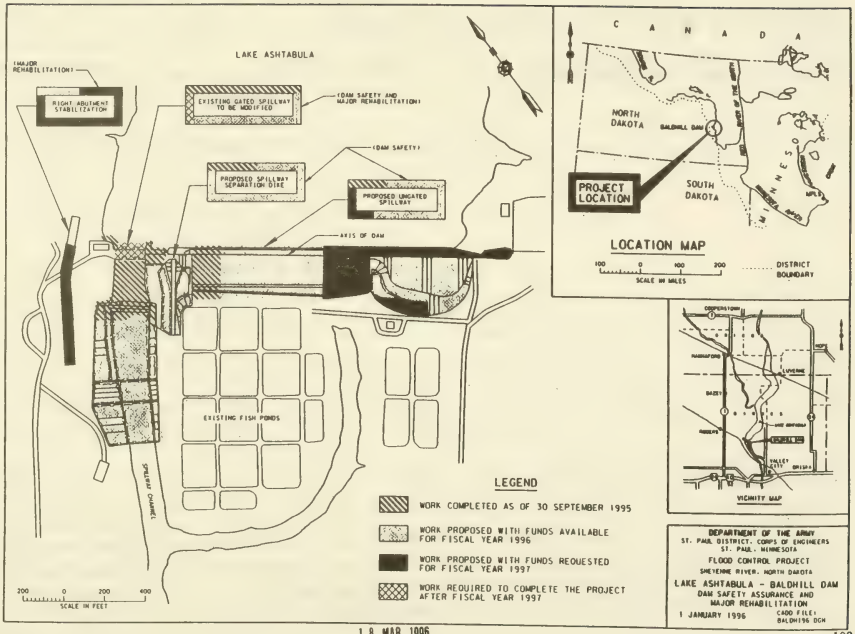
A risk assessment report was prepared in June 1986 to investigate the potential impacts that a range of floods would have on the hydrologic/hydraulic capability of Baldhill Dam. The report indicated that there is a serious spillway discharge capacity deficiency, and recommended increasing discharge capacity by constructing an auxiliary spillway to supplement the existing spillway. The report was approved by the Assistant Secretary of the Army, Civil Works in November 1987.

DIVISION: North Central DISTRICT: St. Paul Lake Ashtabula and Baldhill Dam, North Dakota (Dam Safety)

18 MARCH 1996

OTHER INFORMATION (Cont'd):

In a separate action, the Corps of Engineers is evaluating a reservoir flood control pool raise of 5 feet as a component of the Sheyenne River Flood Control project. The dam modification under construction will not preclude the ability to raise the pool for the authorized flood control purpose in the future. The recommended dam safety and major rehabilitation modifications are compatible with the flood control features. In April 1994, a Joint Water Resource District, comprised of eight member Water Resource Districts along the Sheyenne River, was formed to be the local sponsor for the raise of the flood control pool at Baldhill Dam. Coordination is being conducted with the NDSWC and the Joint Water Resource District on the flood pool raise.



18 MAR 1996

108

848

APPROPRIATION TITLE: Construction, General - Major Rehabilitation - Channel and Harbors (Navigation)

PROJECT: Burns Waterway Harbor, Indiana (Continuing)

LOCATION: The project is located in northwestern Indiana on the southern shore of Lake Michigan in Porter County.

DESCRIPTION: The rehabilitation project consists of constructing a segmented reef breakwater system, 75 feet lakeward of the northern section of the existing rubblemound breakwater. The project provides for seven reef segments, one 1,575 feet long and six 375 feet long with 25 feet spacing between segments.

AUTHORIZATION: River and Harbor Act of 1965

REMAINING BENEFIT - REMAINING COST RATIO: 1.4 to 1 at 8-1/4 percent

TOTAL BENEFIT-COST RATIO: 1.4 to 1 at 8-1/4 percent

INITIAL BENEFIT-COST RATIO: 1.4 to 1 at 8-1/4 percent (FY 1995).

BASIS OF BENEFIT COST RATIO: Benefits are from the latest available evaluation submitted in the Burns Waterway Harbor, Indiana, Breakwater Major Rehabilitation Evaluation Report, approved in August 1993, at October 1992 price levels.

SUMMARIZED FINANCIAL DATA		ACCUM. PCT. OF EST. FED. COST	STATUS: (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	$13,600,000		Entire Project	20	Being Determined
Estimated Non-Federal Cost	0				
Total Estimated Project Cost	$13,600,000				
Allocations to 30 September 1995	2,747,000		PHYSICAL DATA		
Conference Allowance for FY 1996	4,000,000				
Allocation for FY 1996	3,518,000	1/	Submerged Reef	3,500 feet long	
Allocations through FY 1996	6,265,000	46			
Allocation Requested for FY 1997	4,000,000	75			
Programmed Balance to Complete after FY 1997	3,335,000				
Unprogrammed Balance to Complete after FY 1997	0				

1/ Reflects $332,000 reduction assigned as savings and slippage, and $150,000 reprogrammed from the project.

DIVISION: North Central DISTRICT: Chicago Burns Waterway Harbor, Indiana (Major Rehabilitation)

18 MARCH 1996

JUSTIFICATION: In 1989, nearly 9 million tons of commerce passed though Burns Waterway Harbor. Approximately 80 percent consisted of raw material used in the production of steel, such as iron ore, limestone, coal and coke. The remaining 20 percent was bulk and general cargo commodities handled at the State of Indiana public terminal at Burns Waterway Harbor. Average growth rate in vessel traffic from 1980 to 1990 was 5.2 percent per year. The harbor is used by both deep-draft vessels and barges. Winter storms produce waves at the southern end of Lake Michigan which cause substantial physical damage to the breakwater at this harbor. Significant damage has also been incurred by vessels moored in the harbor and to docks, revetments and other infrastructure located inside the harbor. In addition to direct physical damage, shippers experience delays while loading and unloading vessels when waves inside the harbor exceed three feet in height. The construction of a Major Rehabilitation project for the Burns Waterway Harbor breakwater would reduce the occurrence of existing problems at the harbor and improve structural and functional reliability of the breakwater structures. The increase in stability of the Burns Waterway Harbor breakwater would reduce future operations and maintenance costs and emergency repair costs. The reduction of the transmitted wave condition inside the harbor would reduce damages to vessels and delays experienced by cargo-carrying vessels and barges. Average annual benefits in the amount of $1,734,600 are identified for Navigation-General Commercial-Deep Draft Harbor.

FISCAL YEAR 1997: The requested amount of $4,000,000 will be applied as follows:

Continue construction	$ 3,586,000
Planning, Engineering and Design	118,000
Construction Management	296,000
Total	$ 4,000,000

NON-FEDERAL COST: Not applicable.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $13,600,000 is a decrease of $2,200,000 from the latest estimate ($15,800,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features (including inflation adjustment)	$-1,500,000
Post Contract Award and Other Estimating Adjustments	-680,000
Reanalysis of requirements (Real Estate)	-20,000
Total	$-2,200,000

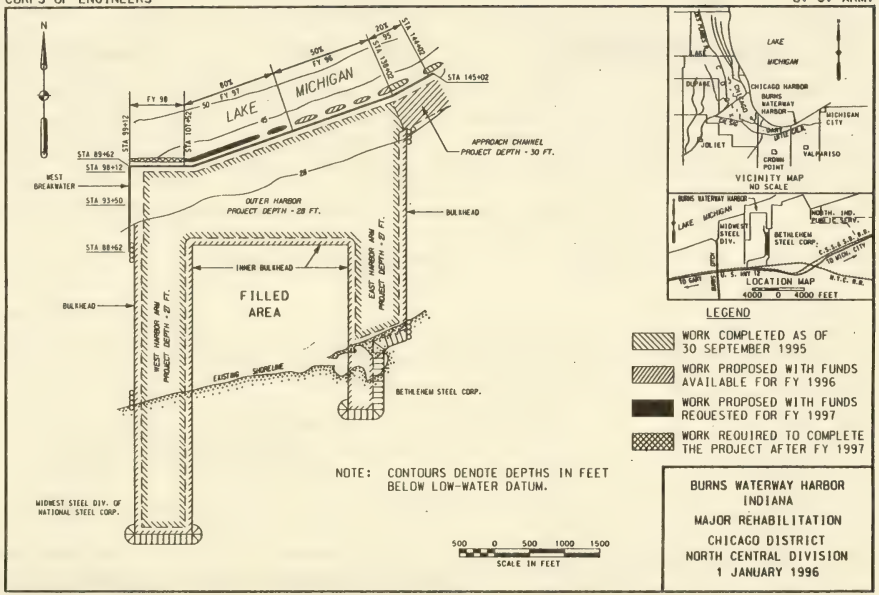
DIVISION: North Central DISTRICT: Chicago Burns Waterway Harbor, Indiana (Major Rehabilitation)

18 MARCH 1996

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Finding of No Significant Impact was signed on June 24, 1993.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1995. The Burns Waterway Harbor, Indiana, Breakwater Major Rehabilitation Report was approved in August 1993.

CORPS OF ENGINEERS U. S. ARMY



LEGEND

- WORK COMPLETED AS OF 30 SEPTEMBER 1995
- WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1996
- WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997
- WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997

BURNS WATERWAY HARBOR
INDIANA
MAJOR REHABILITATION
CHICAGO DISTRICT
NORTH CENTRAL DIVISION
1 JANUARY 1996

852

APPROPRIATION TITLE: Construction, General - Major Rehabilitation - Locks and Dams (Navigation)

PROJECT: Lock and Dam 14, Mississippi River, Iowa (Major Rehabilitation) (Continuing)

LOCATION: The project is located at Mississippi River Mile 493.3, near the city of LeClaire, in Scott County, Iowa. The facility is a unit of the Inland Waterway Navigation System of the Upper Mississippi River Basin and is one of twenty-nine such facilities between Minneapolis, Minnesota, and St. Louis, Missouri.

DESCRIPTION: The lock chamber is 600 feet long by 110 feet wide and has a maximum lift of 11 feet. An auxiliary lock is located adjacent to the Iowa side of the channel. The dam is 2,703-feet long and consists of a 1,343-foot gated section and a 1,360-foot non-submersible earth and rock dike section. Significant features of the work include: resurfacing of concrete in the lock chamber and on dam piers; replacement of operating machinery and the electrical system; installation of a bubbler system in the lock chamber; replacement of roller and tainter gate chain hoisting equipment.

AUTHORIZATION: River and Harbor Act of 1930.

REMAINING BENEFIT-REMAINING COST RATIO: 2.3 to 1 at 8 percent.

TOTAL BENEFIT-COST RATIO: 2.3 to 1 at 8 percent.

INITIAL BENEFIT-COST RATIO: 2.3 to 1 at 8 percent (FY 1996).

BASIS OF BENEFIT-COST RATIO: The Mississippi River, LeClaire, Iowa, Lock and Dam No. 14, Rehabilitation Evaluation Report, dated June 1993, approved 18 August 1993 at October 1994 price levels.

SUMMARIZED FINANCIAL DATA			STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$20,700,000	Entire Project	0	Being Determined
General Appropriations	$10,350,000				
Inland Waterways Trust Fund	$10,350,000				
Estimated Non-Federal Cost		0			
Total Estimated Project Cost		$20,700,000			

DIVISION: North Central DISTRICT: Rock Island Lock and Dam 14, Mississippi River, Iowa (Major Rehabilitation)

18 MARCH 1996

	General Appropriations	Inland Waterways Trust Fund	Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1995	$ 0	$ 0	
Conference Allowance for FY 1996	350,000	350,000	
Allocation for FY 1996 1/	321,000	321,000	
Allocations through FY 1996	321,000	321,000	3
Allocation Requested for FY 1997	1,400,000	1,400,000	17
Programmed Balance to Complete after FY 1997	8,629,000	8,629,000	
Unprogrammed Balance to Complete after FY 1997	0	0	

1/ Reflects $58,000 reduction assigned as Savings and Slippage.

JUSTIFICATION: The dimensional stability of the lockwalls, guidewalls, and concrete surfaces are showing distress and deterioration. Vertical monolith joints in the walls are deteriorated and abraded as a result of barges scraping the walls. The loss of dimensional stability results in barges catching on protection armor and tearing it loose. There is significant concrete damage at all miter gate monoliths. Concrete near the miter gate corners and anchorages is very critical, as the potential exists for damage to lock operating components including the miter gates which would result in closure of the lock for an extended period of time. Overall, the lock surface concrete requires rehabilitation to slow further deterioration, provide protection for critical miter gate components, extend the reliable life of the structure, and to provide a safer working environment for lock personnel. The existing lock and dam electrical system is original equipment, installed when the dam was constructed in the 1930's, is showing advanced signs of deterioration, and does not meet current design standards. Most of the electrical components are not in compliance with the National Electric Code and operation of this equipment is becoming a major safety concern. The electrical distribution system is comprised of lead cables. Increasing resistance of these cables indicates a degradation of the conductivity and insulation coverings. As a result, the operation and maintenance costs will increase with a continued decrease in reliability. The lock mechanical systems are the most critical components in keeping the lock operational. Loss of function of these systems would force the lock to operate at 40 percent efficiency because the gates would have to be opened and closed by towboats. Spare parts for the machinery are becoming increasingly difficult to obtain. The dam roller and tainter gate chains are original equipment and will require major renovation to ensure their reliability. The chains support gates that are used to control and maintain the navigation pools. The lower portion of the roller gate chains are the most environmentally damaged due to their underwater location. Corrosion in the lower portions has caused them to become stiff and difficult to pass over the chain sprockets when raising the gates. Tainter gate chains are also corroded. Replacing the lower one-third of the roller gate chains with stainless steel chains and replacing the tainter gate chains with log chains and pocket wheels will restore them to a fully functional mode. As recently as January 1990, a roller gate chain failed resulting in the loss of use of the gate. The analysis of

854

JUSTIFICATION: (Continued)

the broken parts indicated a fatigue failure. Rehabilitation of the chains is required to reduce maintenance and insure continued reliability. Cracking and spalling on the dam pier horizontal surfaces are allowing water to leak into the concrete and cause deterioration. The pier tops need to be sandblasted and waterproofed to prevent further deterioration and eventual failure. Major commodities passing through the lock include bituminous coal, petroleum products, and grain. Lock tonnage figures for the last 10 years are as follows:

Year	Tonnage	Year	Tonnage	Year	Tonnage	Year	Tonnage
1995	27,266,235	1992	29,998,000	1989	26,843,000	1986	18,983,000
1994	21,960,000	1991	27,844,000	1988	26,683,000		
1993	18,355,000	1990	31,631,000	1987	24,511,000		

Average annual benefits are as follows:

Annual Benefits	Amount
Navigation	$4,385,700

FISCAL YEAR 1997: The requested amount of $2,800,000 will be applied as follows:

Initiate Stage I, Lock Rehabilitation	2,070,000
Initiate Stage II, Dam Rehabilitation	0
Planning, Engineering, and Design	230,000
Construction Management	500,000
Total	$2,800,000 1/

1/ Includes $1,400,000 from the Inland Waterway Trust Fund.

NON-FEDERAL COST: None required.

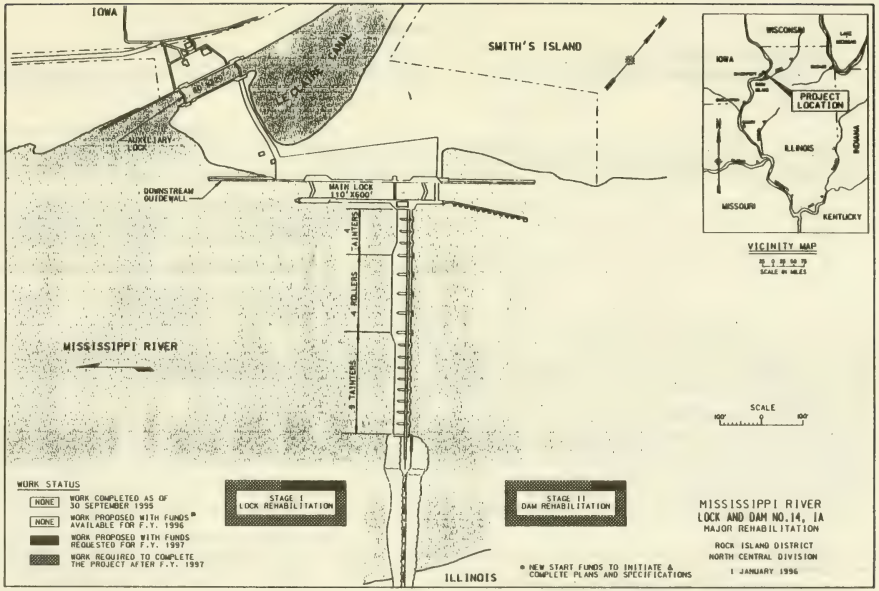
STATUS OF LOCAL COOPERATION: None required.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $20,700,000 is a decrease of $200,000 from the latest estimate ($20,900,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$-180,000
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	-20,000
Total	$-200,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An environmental assessment was distributed for public review in February 1993. A Finding of No Significant Impact was signed in April 1993.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1996. The initial contract, Stage I, Lock Rehabilitation, is scheduled to be awarded in November 1996. Stage II, Dam Rehabilitation, is scheduled to be awarded in August 1997. Lock closure for this work will be during the winter of 1997/1998.


IOWA
SMITH'S ISLAND
LOCK & DAM FAIRL
AUXILIARY LOCK
DOWNSTREAM GUIDEWALL
MAIN LOCK 110'X600'
4 PAINTERS
4 ROLLERS
8 PAINTERS
MISSISSIPPI RIVER
ILLINOIS
WISCONSIN
IOWA
PROJECT LOCATION
ILLINOIS
INDIANA
MISSOURI
KENTUCKY
VICINITY MAP
SCALE IN MILES
SCALE
WORK STATUS
NONE
WORK COMPLETED AS OF 30 SEPTEMBER 1995
NONE
WORK PROPOSED WITH FUNDS* AVAILABLE FOR F.Y. 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 1997
STAGE I
LOCK REHABILITATION
STAGE II
DAM REHABILITATION
* NEW START FUNDS TO INITIATE & COMPLETE PLANS AND SPECIFICATIONS
MISSISSIPPI RIVER
LOCK AND DAM NO.14, IA
MAJOR REHABILITATION
ROCK ISLAND DISTRICT
NORTH CENTRAL DIVISION
1 JANUARY 1996

18 MAR 1996

APPROPRIATION TITLE: Construction, General - Major Rehabilitation - Reservoirs

PROJECT: Lake Ashtabula and Baldhill Dam, North Dakota (Major Rehab) (Continuing)

LOCATION: Baldhill Dam and Reservoir (Lake Ashtabula) are located in eastern North Dakota, about 75 miles west of Fargo and 9 miles northwest of Valley City. The dam is on the Sheyenne River, about 271 river miles upstream of the confluence of the Sheyenne River with the Red River of the North near Fargo. Flood control, water supply, pollution abatement, and recreation are the primary purposes of this project.

DESCRIPTION: The existing earthfill dam is 1,650 feet long and includes a concrete spillway section with three tainter gates. The impoundment capacity is 68,600 acre-feet. The 1982 reconnaissance study and the 1986 risk assessment study found that the existing spillway is not capable of handling a PMF (probable maximum flood). A general design memorandum completed in January 1987 recommended constructing an auxiliary spillway on the left abutment, retaining the existing spillway on the right abutment, constructing a 5-foot concrete parapet wall on top of the dam embankment, and stabilizing the slope on the right abutment. A subsequent value engineering study recommended the auxiliary spillway be ungated and be placed over the existing embankment instead of gated and in the left abutment. This value engineered plan is described in Supplement 1 to General Design Memorandum, Baldhill Dam and Reservoir, dated December 1988. The Feature Design Memorandum on the ungated auxiliary spillway and repair of the existing gated spillway was prepared in April 1993. The revised auxiliary spillway comprises an 880 foot wide broad crest weir located in an excavated section of the dam embankment, a downstream flexible slab, and a rigid chute and downstream apron. Repairs to the existing spillway are also recommended. The ungated auxiliary spillway work will be accomplished under the Dam Safety authority. The repair of the existing spillway will be accomplished under both the Dam Safety and the Major Rehabilitation authorities.

AUTHORIZATION: Flood Control Act of 1944.

REMAINING BENEFIT-REMAINING COST RATIO: 5.8 to 1 at 8 1/2 percent.

TOTAL BENEFIT-COST RATIO: 2.3 to 1 at 8 1/2 percent.

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 8 1/2 (FY 1988).

BASIS OF BENEFIT-COST RATIO: The benefit-cost ratio is based on current cost estimates as presented in the April 1993 Feature Design Memorandum which have been deflated to October 1986 price levels, and benefits as presented in Supplement 1 to GDM for Baldhill Dam and Reservoir, dated December 1988. The cost estimates used are the total of both the Dam Safety and the Major Rehabilitation work.

SUMMARIZED FINANCIAL DATA

		Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost (Major Rehab.)	$7,000,000	
Estimated Non-Federal Cost	0	
Total Estimated Project Cost	$7,000,000 1/	
Allocations to 30 September 1995	$3,118,000	
Conference Allowance for FY 1996	853,000	
Allocation for FY 1996	782,000 2/	
Allocations through FY 1996	3,900,000	56
Allocation Requested for FY 1997	1,200,000	73
Scheduled Balance to Complete after FY 1997	1,900,000	
Unscheduled Balance to Complete after FY 1997	0	

STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	46	Being Determined

PHYSICAL DATA

Dams:

Spillway (Repair Existing) 3 gates

1/ The estimated total project cost for both the Major Rehabilitation and the Dam Safety work is $23,080,000. Funding for the project under Major Rehabilitation should be accomplished concurrently with the Dam Safety funding.

2/ Reflects $71,000 reduction assigned as savings and slippage.

DIVISION: North Central DISTRICT: St. Paul Lake Ashtabula and Baldhill Dam, North Dakota (Major Rehabilitation)

18 MARCH 1996

JUSTIFICATION: In 1892, 1897, 1916 and 1919, the Sheyenne River overflowed its banks causing significant damage. During the 1930's, the basin experienced a serious drought and many river towns lost their water supplies. Caught between these two extremes in water levels, the residents of the basin asked for help. A flood control and water supply project was proposed. Baldhill Dam was constructed and formally dedicated on September 21, 1952. Baldhill Dam has been classified as a large, high hazard dam according to the criteria and guidelines established by the National Program for the Inspection of Dams. The dam is in a long, narrow valley above Valley City, North Dakota (1980 population - 7,771). The dam was designed to create an impoundment with a capacity of 68,600 acre-feet to control runoff from an effective drainage area of 1,988 square miles. It provides a substantial degree of flood control to the cities, villages, and urban areas along the Sheyenne River below the dam. In its present condition, Baldhill Dam has inadequate spillway capacity to pass the probable maximum flood (PMF) and is therefore subject to overtopping. The existing spillway has a capacity of only 43,100 cfs. The capacity needed to pass the PMF is 126,000 cfs. Overtopping endangers the integrity of the embankment at extremely high flows. If the dam failed, a very destructive surge of water would rush down the valley taking about 4 to 6 hours to reach Valley City. At its worst, the flood would inundate about 75 percent of Valley City to some extent, including many of the facilities normally available for emergency shelter. The proposed plan is to construct an auxiliary spillway which will provide the additional discharge capacity required to pass the PMF and to repair the existing gated spillway to make it reliable for passing the original design flows as well as a portion of the higher flows of the revised PMF.

Annual Benefits	Amount
Flood Control	$1,615,800
Recreation	1,483,000
Water Supply	1,689,000
Total	$4,787,800

FISCAL YEAR 1997: The requested amount of $1,200,000 will be applied as follows:

Continue construction - Stage 2	$ 30,000
Continue construction - Stage 3	1,060,000
Planning, Engineering and Design	60,000
Construction Management	50,000
Total	$1,200,000

NON-FEDERAL COST: Not applicable.

DIVISION: North Central DISTRICT: St. Paul Lake Ashtabula and Baldhill Dam, North Dakota (Major Rehabilitation)

STATUS OF LOCAL COOPERATION: Not applicable.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate for the major rehabilitation work of $7,000,000 is higher than the latest estimate ($6,280,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Reanalysis of Requirements	$ +720,000
Total	$ +720,000

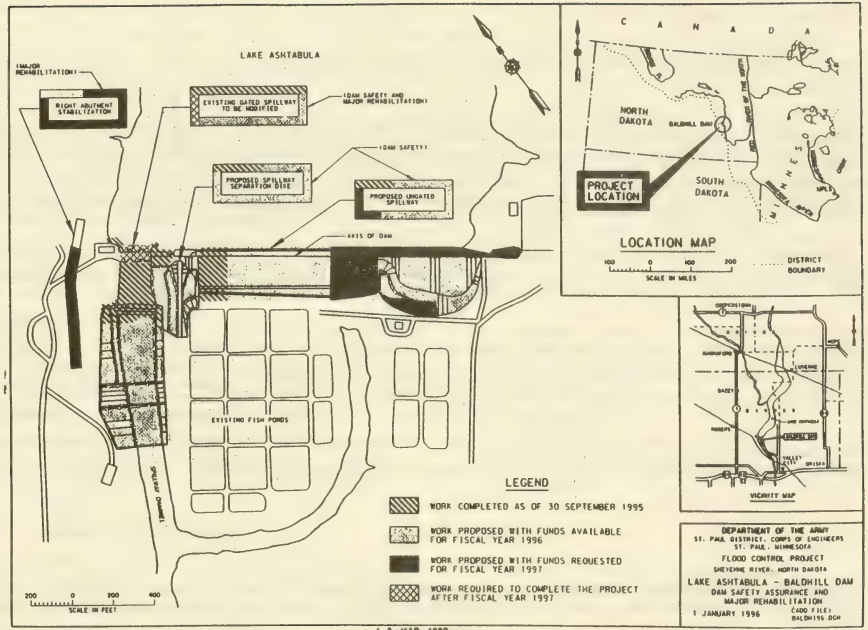
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS on the GDM was filed with EPA on 5 August 1988. The Record of Decision for the Final EIS on the GDM was signed on 25 April 1989. An Environmental Assessment for the GDM Supplement was prepared in December 1988. A Finding of No Significant Impact on the GDM Supplement was signed on 21 November 1989.

OTHER INFORMATION: The recommended overall plan for major rehabilitation and dam safety is to increase the spillway capacity at Baldhill Dam to provide the capability of discharging PMF (Probable Maximum Flood) flows. This will be accomplished by constructing an 880 foot long auxiliary ungated broad crest weir spillway located in an excavated section of the dam embankment, including a downstream flexible slab and a rigid chute and downstream apron, and the repair and modification of the existing gated spillway, including the stabilization of the right abutment. The dam safety and the major rehabilitation modifications are both integral parts of the total package and need to be funded, designed, and constructed as one unit.

A risk assessment report was prepared in June 1986 to investigate the potential impacts that a range of floods would have on the hydrologic/hydraulic capability of Baldhill Dam. The report indicated that there is a serious spillway discharge capacity deficiency, and recommended increasing discharge capacity by constructing an auxiliary spillway to supplement the existing spillway. The report was approved by the ASA(CW) (Assistant Secretary of the Army, Civil Works) in November 1987.

In a separate action, the Corps of Engineers is evaluating a reservoir flood control pool raise of 5 feet as a component of the Sheyenne River Flood Control project. The recommended alternative being implemented for dam safety and major rehabilitation modifications will not preclude the ability to raise the pool for the authorized flood control purpose in the future. The recommended dam safety and major rehabilitation modifications are compatible with the flood control features. In April 1994, a Joint Water Resource District, comprised of eight member Water Resource Districts along the Sheyenne River, was formed to be the local sponsor for the raise of the flood control pool at Baldhill Dam. Coordination is being conducted with the NDSWC and the Joint Water Resource District on the flood pool raise.

861


LAKE ASHTABULA
(MAJOR REHABILITATION)
RIGHT ABUTMENT STABILIZATION
EXISTING GATED SPILLWAY TO BE MODIFIED
(DAM SAFETY AND MAJOR REHABILITATION)
(DAM SAFETY)
PROPOSED SPILLWAY SEPARATION DIKE
PROPOSED UNGATED SPILLWAY
AXIS OF DAM
EXISTING FISH PONDS
SPILLWAY CHANNEL
200 0 200 400
SCALE IN FEET
LEGEND
WORK COMPLETED AS OF 30 SEPTEMBER 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FISCAL YEAR 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997
C A N A D A
NORTH DAKOTA
BALDHILL DAM
SOUTH DAKOTA
PROJECT LOCATION
LOCATION MAP
100 0 100 200
SCALE IN MILES
DISTRICT BOUNDARY
VICINITY MAP
DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
ST. PAUL, MINNESOTA
FLOOD CONTROL PROJECT
SHEYENNE RIVER, NORTH DAKOTA
LAKE ASHTABULA - BALDHILL DAM
DAM SAFETY ASSURANCE AND MAJOR REHABILITATION
1 JANUARY 1996
CADD FILE: BALDHILL DGN

18 MAR 1996

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation**

a. Channels and Harbors.

The budget estimate of $71,285,000 provides for essential operation and maintenance work on 86 channel and harbor projects named in the list which follows. The work to be accomplished under this activity consists of operating and maintaining the Great Lakes navigation channels and harbors by means of dredging, constructing bulkheads and confined disposal areas, snagging, and repairing channel stabilization works, navigation structures, and harbor jetties, all as authorized in the laws pertaining to river and harbor projects.

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Illinois			
Chicago Harbor	5,215,000	3,528,000	
	(1,310,000)	(1,128,000)	1. Major Rehabilitation Report in FY 96.
	(3,905,000)	(2,400,000)	2. Construct bulkhead slots for dewatering.
Chicago River	395,000	507,000	
	(395,000)	(507,000)	1. Increased water quality and sediment testing costs in FY 97.
	(0)	(0)	2. None.

23-577 96-28

863

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Illinois (Cont'd)			
Lake Michigan Diversion	472,000	498,000	
	(472,000)	(498,000)	1. None.
	(0)	(0)	2. None.
Waukegan Harbor	770,000	1,167,000	
	(135,000)	(65,000)	1. Environmental studies in FY 96.
	(635,000)	(1,102,000)	2. Dredging.
Illinois & Indiana			
Calumet Harbor & River	455,000	1,258,000	
	(150,000)	(188,000)	1. Dredging studies in FY 97.
	(305,000)	(1,070,000)	2. Dredging.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Indiana			
Burns Waterway Harbor	851,000	1,193,000	
	(49,000)	(51,000)	1. None.
	(802,000)	(1,142,000)	2. Repair north breakwater, west leg.
Burns Waterway Small Boat Harbor	211,000	5,000	
	(55,000)	(5,000)	1. NEPA coordination in FY 96.
	(156,000)	(0)	2. None.
Indiana Harbor	575,000	458,000	
	(50,000)	(53,000)	1. None.
	(525,000)	(405,000)	2. None.
Michigan City Harbor	537,000	62,000	
	(50,000)	(62,000)	1. Environmental fisheries study in FY 97.
	(487,000)	(0)	2. None.

865

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Michigan			
Alpena Harbor	0	254,000	
	(0)	(18,000)	1. Condition surveys in FY 97.
	(0)	(236,000)	2. None.
Arcadia Harbor	110,000	293,000	
	(33,000)	(21,000)	1. Preliminary assessment of dredged disposal requirements in FY 96.
	(77,000)	(272,000)	2. None.
AuSable Harbor	0	22,000	
	(0)	(22,000)	1. Project condition surveys in FY 97.
	(0)	(0)	2. None.
Black River (P.H.)	0	23,000	
	(0)	(23,000)	1. Project condition surveys in FY 97.
	(0)	(0)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Michigan (Cont'd)			
Caseville Harbor	190,000	124,000	
	(10,000)	(20,000)	1. Variation in project condition surveys in FY 97.
	(180,000)	(104,000)	2. None.
Channels in Lake St. Clair	214,000	125,000	
	(114,000)	(105,000)	1. None.
	(100,000)	(20,000)	2. None.
Charlevoix Harbor	264,000	80,000	
	(58,000)	(55,000)	1. None.
	(206,000)	(25,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
			1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Michigan (Cont'd)			
Cheboygan Harbor	0	105,000	
	(0)	(32,000)	1. Condition surveys & preliminary assessment of dredged disposal requirements in FY 97.
	(0)	(73,000)	2. None.
Clinton River	0	113,000	
	(0)	(113,000)	1. Condition surveys, preliminary assessment of dredged disposal requirements, & sediment sampling in FY 97.
	(0)	(0)	2. None.
Detroit River	3,695,000	3,466,000	
	(1,285,000)	(1,401,000)	1. Variation on condition surveys & CDF monitoring cost in FY 97.
	(2,410,000)	(2,065,000)	2. Locate and remove obstructions.

868

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
			1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Michigan (Cont'd)			
Frankfort Harbor	0	38,000	
	(0)	(30,000)	1. Project condition surveys in FY 97.
	(0)	(8,000)	2. None.
Grand Haven Harbor	1,797,000	1,278,000	
	(550,000)	(525,000)	1. None.
	(1,247,000)	(753,000)	2. Repair north revetment, section F.
Harbor Beach Harbor	0	112,000	
	(0)	(112,000)	1. Condition & structure surveys, sediment sampling & preliminary assessment of dredged disposal requirements in FY 97.
	(0)	(0)	2. None.

NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Michigan (Cont'd)			
Harrisville Harbor	0	368,000	
	(0)	(40,000)	1. Map survey control points, preliminary assessment of dredged disposal requirements, & condition surveys in FY 97.
	(0)	(328,000)	2. None.
Holland Harbor	527,000	614,000	
	(245,000)	(185,000)	1. Dredged material management plan in FY 96.
	(282,000)	(429,000)	2. None.
Inland Route	43,000	23,000	
	(43,000)	(23,000)	1. Negotiations with the State for turn-over of lock in FY 96.
	(0)	(0)	2. None.
Keweenaw Waterway	624,000	302,000	
	(90,000)	(57,000)	1. Preliminary assessment of dredged disposal requirements in FY 96.
	(534,000)	(245,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Michigan (Cont'd)			
Lac LaBelle Harbor	0	82,000	
	(0)	(22,000)	1. Condition surveys & preliminary assessment of dredged disposal requirements in FY 97.
	(0)	(60,000)	2. None.
Leland Harbor	337,000	306,000	
	(26,000)	(20,000)	1. Preliminary assessment of dredged disposal requirements in FY 96.
	(311,000)	(286,000)	2. None.
Lexington Harbor	263,000	225,000	
	(61,000)	(65,000)	1. None.
	(202,000)	(160,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Michigan (Cont'd)			
Little Lake	125,000	94,000	
Harbor	(23,000)	(12,000)	1. Variation in condition surveys in FY 97.
	(102,000)	(82,000)	2. None.
Ludington Harbor	383,000	166,000	
	(88,000)	(106,000)	1. Preliminary assessment of dredged disposal requirements in FY 97.
	(295,000)	(60,000)	2. None.
Mackinaw City	0	22,000	
Harbor	(0)	(22,000)	1. Condition surveys & preliminary assessment of dredged disposal requirements in FY 97.
	(0)	(0)	2. None.
Manistee Harbor	302,000	60,000	
	(48,000)	(55,000)	1. Variation in condition surveys & real estate costs in FY 97.
	(254,000)	(5,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	OBLIGATIONS Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Michigan (Cont'd)			
Manistique Harbor	0	323,000	
	(0)	(52,000)	1. Map survey & control points, preliminary assessment of dredged disposal requirements, & condition surveys in FY 97.
	(0)	(271,000)	2. None.
Monroe Harbor	786,000	717,000	
	(114,000)	(90,000)	1. Preliminary assessment of dredged disposal requirements in FY 96.
	(672,000)	(627,000)	2. Dredging.
Muskegon Harbor	718,000	126,000	
	(155,000)	(126,000)	1. Monitoring & assessment report for beach nourishment in FY 96.
	(563,000)	(0)	2. None.
New Buffalo Harbor	306,000	25,000	
	(25,000)	(25,000)	1. None.
	(281,000)	(0)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Michigan (Cont'd)			
Ontonagon Harbor	509,000	496,000	
	(81,000)	(42,000)	1. Preliminary assessment of dredged disposal requirements and archaeological investigations in FY 96.
	(428,000)	(454,000)	2. None.
Pentwater Harbor	269,000	1,719,000	
	(55,000)	(22,000)	1. Archaeological investigations & structure surveys in FY 96.
	(214,000)	(1,697,000)	2. Repair south pier & south revetment, sections B, F-H, J, & K.
Petoskey Harbor	0	163,000	
	(0)	(10,000)	1. Condition surveys in FY 97.
	(0)	(153,000)	2. None.
Point Lookout Harbor	0	298,000	
	(0)	(20,000)	1. Condition surveys in FY 97.
	(0)	(278,000)	2. None.

NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Michigan (Cont'd)			
Port Austin Harbor	0	163,000	
	(0)	(10,000)	1. Condition surveys in FY 97.
	(0)	(153,000)	2. None.
Port Sanilac Harbor	323,000	218,000	
	(57,000)	(70,000)	1. Beach nourishment monitoring in FY 97.
	(266,000)	(148,000)	2. None.
Portage Lake Harbor	63,000	255,000	
	(20,000)	(21,000)	1. None.
	(43,000)	(234,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Michigan (Cont'd)			
Presque Isle Harbor	0	82,000	
	(0)	(82,000)	1. Sediment sampling, preliminary assessment of dredged disposal requirements, & condition surveys in FY 97.
	(0)	(0)	2. None.
Rouge River	132,000	502,000	
	(122,000)	(94,000)	1. Variation in condition surveys in FY 96.
	(10,000)	(408,000)	2. None.
Saginaw River	1,719,000	1,729,000	
	(561,000)	(710,000)	1. Variation in environmental activities & condition survey costs in FY 97.
	(1,158,000)	(1,019,000)	2. Dredging.

NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Michigan (Cont'd)			
Saugatuck Harbor	989,000	1,926,000	
	(55,000)	(36,000)	1. Sediment sampling in FY 96.
	(934,000)	(1,890,000)	2. Repair north & south piers, sections A-C.
Sebewaing Harbor	367,000	538,000	
	(15,000)	(17,000)	1. Variation in condition survey costs in FY 97.
	(352,000)	(521,000)	2. None.
South Haven Harbor	0	35,000	
	(0)	(12,000)	1. Condition surveys in FY 97.
	(0)	(23,000)	2. None.
St. Clair River	649,000	767,000	
	(359,000)	(200,000)	1. Map survey control points in FY 96.
	(290,000)	(567,000)	2. Locate and remove obstructions.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Michigan (Cont'd)			
St. Joseph Harbor	1,641,000	671,000	
	(513,000)	(394,000)	1. Dredge Material Management Program studies & condition surveys in FY 96.
	(1,128,000)	(277,000)	2. None.
White Lake Harbor	268,000	1,688,000	
	(43,000)	(78,000)	1. Beach nourishment monitoring in FY 97.
	(225,000)	(1,610,000)	2. Repair north & south piers, sections A-D.
Whitefish Point Harbor	0	22,000	
	(0)	(22,000)	1. Condition surveys in FY 97.
	(0)	(0)	2. None.

878

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Michigan & Wisconsin			
Menominee Harbor	32,000	484,000	
	(28,000)	(32,000)	1. Preliminary assessment of dredged disposal requirements in FY 97.
	(4,000)	(452,000)	2. None.
Minnesota			
Grand Marais Harbor	0	22,000	
	(0)	(22,000)	1. Condition surveys & preliminary assessment of dredged disposal requirements in FY 97.
	(0)	(0)	2. None.
Minnesota River	139,000	145,000	
	(53,000)	(55,000)	1. None.
	(86,000)	(90,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Minnesota (Cont'd)			
Two Harbors	0	157,000	
	(0)	(27,000)	1. Condition surveys & preliminary assessment of dredged disposal requirements in FY 97.
	(0)	(130,000)	2. None.
Minnesota & Wisconsin			
Duluth-Superior Harbor	2,876,000	2,665,000	
	(1,149,000)	(903,000)	1. Dredge Material Management Program plans & environmental activities in FY 96.
	(1,727,000)	(1,762,000)	2. Repair Superior entry piers and dredging.

880

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
			1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
New York			
Buffalo Harbor	420,000	1,476,000	
	(90,000)	(123,000)	1. Water control costs & real estate activities in FY 97.
	(330,000)	(1,353,000)	2. Dredging.
Dunkirk Harbor	298,000	263,000	
	(23,000)	(25,000)	1. None.
	(275,000)	(238,000)	2. None.
Oswego Harbor	446,000	285,000	
	(20,000)	(15,000)	1. Variation in condition surveys in FY 96.
	(426,000)	(270,000)	2. None.
Rochester Harbor	23,000	918,000	
	(23,000)	(35,000)	1. Variation in condition surveys in FY 97.
	(0)	(883,000)	2. Dredging.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
New York (Cont'd)			
Sturgeon Point	7,000	15,000	
Small Boat Harbor	(0)	(0)	1. Variation in annual sand bypass costs in FY 97.
	(7,000)	(15,000)	2. None.
Ohio			
Ashtabula Harbor	484,000	718,000	
	(45,000)	(213,000)	1. Partnership Dredge Material Management Program planning & real estate activities in FY 97.
	(439,000)	(505,000)	2. Breakwater repairs.
Cleveland Harbor	6,532,000	17,938,000	
	(175,000)	(190,000)	1. None.
	(6,357,000)	(17,748,000)	2. Confined Disposal Facility construction.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Ohio (Cont'd)			
Fairport Harbor	27,000	866,000	
	(0)	(28,000)	1. Project condition survey & real estate activity in FY 97.
	(27,000)	(838,000)	2. Dredging.
Huron Harbor	790,000	1,030,000	
	(34,000)	(25,000)	1. Variation in project condition surveys in FY 96.
	(756,000)	(1,005,000)	2. Dredging and breakwater repairs.
Lorain Harbor	1,776,000	445,000	
	(50,000)	(35,000)	1. Variation in project condition surveys in FY 96.
	(1,726,000)	(410,000)	2. None.
Sandusky Harbor	52,000	1,013,000	
	(52,000)	(48,000)	1. Variation in project condition surveys in FY 96.
	(0)	(965,000)	2. Dredging.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Ohio (Cont'd)			
Toledo Harbor	3,494,000	3,340,000	
	(250,000)	(608,000)	1. Variation in Long-Term Management Strategy costs in FY 97.
	(3,244,000)	(2,732,000)	2. Dredging.
Pennsylvania			
Erie	332,000	25,000	
	(35,000)	(25,000)	1. Variation in project condition surveys in FY 96.
	(297,000)	(0)	2. None.
Wisconsin			
Ashland Harbor	0	276,000	
	(0)	(26,000)	1. Condition surveys & preliminary assessment of dredged disposal requirements in FY 97.
	(0)	(250,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Wisconsin (Cont'd)			
Green Bay Harbor	1,166,000	1,018,000	
	(370,000)	(395,000)	1. None.
	(796,000)	(623,000)	2. Dredging.
Kenosha Harbor	132,000	465,000	
	(32,000)	(58,000)	1. Map survey control points in FY 97.
	(100,000)	(407,000)	2. None.
Kewaunee Harbor	330,000	329,000	
	(133,000)	(157,000)	1. Sediment sampling in FY 97.
	(197,000)	(172,000)	2. None.
LaPointe Harbor	0	22,000	
	(0)	(22,000)	1. Condition surveys & preliminary assessment of dredged disposal requirements in FY 97.
	(0)	(0)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Wisconsin (Cont'd)			
Manitowoc Harbor	191,000	187,000	
	(110,000)	(65,000)	1. Confined disposal facility testing in FY 96.
	(81,000)	(122,000)	2. None.
Milwaukee Harbor	4,667,000	2,673,000	
	(435,000)	(365,000)	1. Dredged material management plans in FY 96.
	(4,232,000)	(2,308,000)	2. Repair spalling, south breakwater, section E.
Oconto Harbor	0	58,000	
	(0)	(58,000)	1. Preliminary assessment of dredged disposal requirements, map survey control points & condition surveys in FY 97.
	(0)	(0)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Wisconsin (Cont'd)			
Port Washington Harbor	0	40,000	
	(0)	(40,000)	1. Map survey control points, preliminary assessment of dredged disposal requirements, & condition surveys in FY 97.
	(0)	(0)	2. None.
Port Wing Harbor	0	109,000	
	(0)	(12,000)	1. Condition surveys in FY 97.
	(0)	(97,000)	2. None.
Saxon Harbor	0	188,000	
	(0)	(12,000)	1. Condition surveys in FY 97.
	(0)	(176,000)	2. None.
Sheboygan Harbor	83,000	560,000	
	(79,000)	(45,000)	1. Variation in condition surveys in FY 96.
	(4,000)	(515,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Wisconsin (Cont'd)			
Sturgeon Bay Harbor	140,000	299,000	
& Lake Michigan	(104,000)	(86,000)	1. Variation in condition surveys in FY 96.
Ship Canal	(36,000)	(213,000)	2. None.
Two Rivers Harbor	1,220,000	29,000	
	(62,000)	(29,000)	1. Sediment sampling in FY 96.
	(1,158,000)	(0)	2. None.
Other Projects	2,059,000		
Maintained	(210,000)		
Periodically	(1,849,000)		

888

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Sub-Total Regular O&M For Channels & Harbors	54,810,000 (11,077,000) (43,733,000)	67,492,000 (11,553,000) (55,939,000)	1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).

689

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

DIKED DISPOSAL

The budget estimate of $3,793,000 provides for initiation of construction for one confined disposal facility.

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Wisconsin			
Green Bay Harbor	25,000 (0) (25,000)	3,793,000 (0) (3,793,000)	1. None. 2. Construction of confined disposal facility.
Sub-Total Diked Disposal	25,000 (0) (25,000)	3,793,000 (0) (3,793,000)	

890

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

a. Channels and Harbors. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
			1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-).
			2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Total-Channels & Harbors	54,835,000	71,285,000	
	(11,077,000)	(11,553,000)	
	(43,758,000)	(59,732,000)	

891

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

b. Locks, Dams & Canals.

The budget estimate of $112,054,000 provides for the operational requirements of two projects, portions of the Illinois Waterway and Mississippi River projects, and caretaker status of the Fox River, Wisconsin project. Requirements include: operation of project facilities; labor; supplies; material and parts required for day-to-day functioning of projects; and periodic maintenance, repairs and replacements. The requested amount also includes application of special recreation use fees for recreation areas.

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Illinois			
Illinois Waterway	20,805,000	23,726,000	
	(11,225,000)	(12,052,000)	1. None.
	(9,580,000)	(11,674,000)	2. Dredging; repair gates, strut assemblies, machinery, concrete, electrical & mechanical features of locks; repair two wicket dams and five gated dams; remove channel obstructions; repair headgate section at Starved Rock Dam.

892

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

b. Locks, Dams & Canals. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Illinois (Cont'd)			
Mississippi River between Missouri River & Minneapolis (NCD)	76,021,000 (33,008,000) (43,013,000)	79,423,000 (34,068,000) (45,355,000)	1. None. 2. Dredging; remove channel obstructions; maintain recreation facilities; repair wing dams in Pool 21; perform structural repairs to Dam 14; repair gates, anchor bars, strut assemblies, and operating machinery of locks; maintain dikes and spillways at Locks 11-14, 16-18, 21 and 22; initiate tainter and roller gate chain replacement at Locks 15, 17, and 18; initiate construction of project office at LeClaire Base; construct bulkhead slots at Lock 11; crane carrier and bulkhead contract at Locks and Dams 2 - 10; Lock and Dams 5 & 6 building, site and controls; Lock and Dam 6 furnish and install tainter gate chains; Lock and Dam 10 install new lock machinery; Lock and Dam 1 dewatering; Lock and Dam 2 replace auxiliary gates; Lock and Dam 8 sandblast and paint dam service bridge; Lock and Dam 10 structural rehabilitation; includes Major Rehabilitation at Locks and Dams 3, 5A-9 at $5,600,000: see justification following this table.

NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

b. Locks, Dams & Canals. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Minnesota			
Reservoirs at	3,380,000	2,397,000	
Headwaters of	(2,222,000)	(2,241,000)	1. None.
Mississippi	(1,158,000)	(156,000)	2. None.
River			
New York			
Black Rock Channel	3,863,000	3,906,000	
& Tonawanda	(725,000)	(744,000)	1. None.
Harbor	(3,138,000)	(3,162,000)	2. Repairs to lower east approach wall.
Wisconsin			
Fox River	2,381,000	2,602,000	
	(1,394,000)	(1,317,000)	1. None.
	(987,000)	(1,285,000)	2. Replace gate hoist mechanism at Upper & Lower Appleton Dam.
Other Projects	590,000		
Maintained	(0)		
Periodically	(590,000)		

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (Cont'd)

b. Locks, Dams & Canals. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
Total-Locks, Dams & Canals	107,040,000 (48,574,000) (58,466,000)	112,054,000 (50,422,000) (61,632,000)	1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
TOTAL NAVIGATION	161,875,000 (59,651,000) (102,224,000)	183,339,000 (61,975,000) (121,364,000)	

23-577 96 - 29

895

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control**

a. Reservoirs.

The budget estimate of $18,866,000 for the operation and maintenance of 14 flood control reservoir projects within the division provides the amount for operation and maintenance requirements. Annual requirements are for operation and maintenance of project facilities; labor; supplies; material and parts required for the day-to-day functioning of projects. The requested amount also includes application of special recreation use fees for recreation areas.

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Illinois			
Farm Creek	262,000 (155,000) (107,000)	257,000 (138,000) (119,000)	1. Cultural resource management in FY 96. 2. None.
Iowa			
Coralville Lake	2,659,000 (1,944,000) (715,000)	2,726,000 (2,056,000) (670,000)	1. None. 2. None.
Red Rock Dam - Lake Red Rock	4,687,000 (2,146,000) (2,541,000)	3,518,000 (2,220,000) (1,298,000)	1. None. 2. Continue construction of dam tainter gate repairs.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control** (Cont'd)

a. Reservoirs. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Iowa (Cont'd)			
Saylorville Lake	4,003,000	3,635,000	
	(2,794,000)	(2,842,000)	1. None.
	(1,209,000)	(793,000)	2. None.
Minnesota			
Lac qui Parle Lake	550,000	835,000	
	(498,000)	(564,000)	1. Perform periodic inspection of dam & structures in FY 97.
	(52,000)	(271,000)	2. None.
Orwell Lake	1,082,000	2,909,000	
	(273,000)	(280,000)	1. None.
	(809,000)	(2,629,000)	2. Dam spillway construction.
Red Lake Reservoir	290,000	87,000	
	(208,000)	(87,000)	1. Reservoir regulation plan update, develop marsh water control plan, & periodic inspection in FY 96.
	(82,000)	(0)	2. None.

897

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control** (Cont'd)

a. Reservoirs. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Minnesota & South Dakota			
Big Stone Lake- Whetstone River	475,000 (195,000) (280,000)	179,000 (179,000) (0)	 1. None. 2. None.
Lake Traverse	973,000 (372,000) (601,000)	430,000 (415,000) (15,000)	 1. Perform periodic inspection at White Rock Dam in FY 97. 2. None.
New York			
Mt. Morris Lake	1,745,000 (925,000) (820,000)	2,361,000 (1,061,000) (1,300,000)	 1. Update project master plan in FY 97. 2. Repair dam access road.
North Dakota			
Lake Ashtabula- Baldhill Dam	1,230,000 (957,000) (273,000)	933,000 (868,000) (65,000)	 1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control** (Cont'd)

a. Reservoirs. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
North Dakota (Cont'd)			
Homme Lake	149,000 (149,000) (0)	150,000 (150,000) (0)	1. None. 2. None.
Souris River	97,000 (97,000) (0)	261,000 (261,000) (0)	1. Variation in water control requirements due to completion of new project at Lake Darling Dam in FY 97. 2. None.
Wisconsin			
Eau Galle River Lake	538,000 (431,000) (107,000)	585,000 (499,000) (86,000)	1. Revise reservoir regulation manual in FY 97. 2. None.
Total-Reservoirs	18,740,000 (11,144,000) (7,596,000)	18,866,000 (11,620,000) (7,246,000)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control** (Cont'd)

b. Channel Improvements, Inspections and Miscellaneous Maintenance.

The budget estimate of $1,355,000 provides for the inspection of the annual maintenance requirements of two local flood protection projects, minimum maintenance of one partially constructed flood control project and the inspection of completed flood control projects turned over to local interests to ensure adequate operation and maintenance.

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Illinois			
North Branch, Chicago River	0	150,000	
	(0)	(0)	1. None.
	(0)	(150,000)	2. None.
Wisconsin			
La Farge Lake	41,000	120,000	
	(41,000)	(45,000)	1. None.
	(0)	(75,000)	2. None.

900

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control** (Cont'd)

b. Channel Improvements, Inspections and Miscellaneous Maintenance. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
			1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Other Projects	35,000		
Maintained	(0)		
Periodically	(35,000)		
Inspection of Completed Works			
Illinois	165,000	228,000	
	(165,000)	(228,000)	1. Variation in the number of projects inspected in FY 97.
	(0)	(0)	2. None.
Indiana	16,000	21,000	
	(16,000)	(21,000)	1. None.
	(0)	(0)	2. None.
Iowa	48,000	69,000	
	(48,000)	(69,000)	1. Variation in the number of projects inspected in FY 97.
	(0)	(0)	2. None.
Michigan	152,000	205,000	
	(152,000)	(205,000)	1. Variation in the number of projects inspected in FY 97.
	(0)	(0)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control** (Cont'd)

b. Channel Improvements, Inspections and Miscellaneous Maintenance. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Inspection of Completed Works (Cont'd)			
Minnesota	6,000	9,000	
	(6,000)	(9,000)	1. None.
	(0)	(0)	2. None.
Missouri	20,000	28,000	
	(20,000)	(28,000)	1. None.
	(0)	(0)	2. None.
New York	182,000	225,000	
	(182,000)	(175,000)	1. None.
	(0)	(50,000)	2. None.
North Dakota	65,000	104,000	
	(65,000)	(104,000)	1. Variation in the number of projects inspected in FY 97.
	(0)	(0)	2. None.
Ohio	121,000	150,000	
	(121,000)	(150,000)	1. Variation in the number of projects inspected in FY 97.
	(0)	(0)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control** (Cont'd)

b. Channel Improvements, Inspections and Miscellaneous Maintenance. (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
			1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Inspection of Completed Works (Cont'd)			
Wisconsin	36,000 (36,000) (0)	46,000 (46,000) (0)	1. Variation in the number of projects inspected in FY 97. 2. None.
Total - Channel Improvements, Inspections and Miscellaneous Maintenance.	897,000 (860,000) (37,000)	1,355,000 (1,080,000) (275,000)	
TOTAL FLOOD CONTROL	19,637,000 (12,004,000) (7,633,000)	20,221,000 (12,700,000) (7,521,000)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

3. **Multiple-Purpose Power Projects**

The budget estimate of $16,557,000 for the operation and maintenance of the St. Marys Falls Canal, locks and power plant provides the amount for operational requirements. Annual requirements are for operation of project facilities; labor; supplies; materials and parts required for the day-to-day functioning of the project.

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Michigan			
St. Marys River	16,664,000 (6,914,000) (9,750,000)	16,557,000 (7,115,000) (9,442,000)	1. None. 2. Locate & remove obstructions; repair rock cut east guide wall; construct Armor Old disposal sites; maintenance of power plant systems; maintenance of the locks.
TOTAL MULTIPLE-PURPOSE POWER PROJECTS	16,664,000 (6,914,000) (9,750,000)	16,557,000 (7,115,000) (9,442,000)	

904

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

4. **Protection of Navigation**

The budget estimate of $4,750,000 provides for accomplishing project condition surveys for projects where maintenance is not scheduled in the budget year. It also provides for Great Lakes water control monitoring.

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Project Condition Surveys			
Illinois	58,000 (58,000) (0)	100,000 (100,000) (0)	1. Variation in number of projects surveyed in FY 97. 2. None.
Indiana	15,000 (15,000) (0)	26,000 (26,000) (0)	1. Variation in number of projects surveyed in FY 97. 2. None.
Iowa	(0) (0) (0)	61,000 (61,000) (0)	1. Variation in number of projects surveyed in FY 97. 2. None.
Michigan	163,000 (163,000) (0)	169,000 (169,000) (0)	1. None. 2. None.
Minnesota	50,000 (50,000) (0)	59,000 (59,000) (0)	1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

4. **Protection of Navigation** (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Project Condition Surveys (Cont'd)			
New York	52,000	109,000	
	(52,000)	(109,000)	1. Variation in number of projects surveyed in FY 97.
	(0)	(0)	2. None.
Ohio	15,000	26,000	
	(15,000)	(26,000)	1. None.
	(0)	(0)	2. None.
Pennsylvania	10,000	22,000	
	(10,000)	(22,000)	1. None.
	(0)	(0)	2. None.
Wisconsin	72,000	78,000	
	(72,000)	(78,000)	1. None.
	(0)	(0)	2. None.

906

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

4. **Protection of Navigation** (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Surveillance of Northern Boundary Waters			
Illinois	133,000	191,000	
	(133,000)	(191,000)	1. Variation in water control monitoring in FY 97.
	(0)	(0)	2. None.
Indiana	76,000	110,000	
	(76,000)	(110,000)	1. Variation in water control monitoring in FY 97.
	(0)	(0)	2. None.
Michigan	1,585,000	2,301,000	
	(1,585,000)	(2,301,000)	1. Variation in water control monitoring in FY 97.
	(0)	(0)	2. None.
Minnesota	158,000	231,000	
	(158,000)	(231,000)	1. Variation in water control monitoring in FY 97.
	(0)	(0)	2. None.
New York	366,000	527,000	
	(366,000)	(527,000)	1. Variation in water control monitoring in FY 97.
	(0)	(0)	2. None.

907

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

4. **Protection of Navigation** (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Surveillance of Northern Boundary Waters (Cont'd)			
North Dakota	22,000 (22,000) (0)	33,000 (33,000) (0)	1. Variation in water control monitoring in FY 97. 2. None.
Ohio	197,000 (197,000) (0)	283,000 (283,000) (0)	1. Variation in water control monitoring in FY 97. 2. None.
Wisconsin	292,000 (292,000) (0)	424,000 (424,000) (0)	1. Variation in water control monitoring in FY 97. 2. None.
TOTAL PROTECTION OF NAVIGATION	3,291,000 (3,291,000) (0)	4,750,000 (4,742,000) (8,000)	

908

NORTH CENTRAL DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

4. **Protection of Navigation** (Cont'd)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items
GRAND TOTAL- NORTH CENTRAL DIVISION	201,467,000 (81,860,000) (119,607,000)	224,867,000 (86,532,000) (138,335,000)	1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).

INVESTIGATION TITLE: Operation and Maintenance - Major Rehabilitation - Locks and Dams (Navigation)

PROJECT: Mississippi River between Missouri River and Minneapolis, Minnesota, Locks and Dams Nos. 3, 5A, 6, 7, 8, and 9, Minnesota, Wisconsin and Iowa (Major Rehab)(Continuing)

LOCATION: Locks and Dams 3 and 5A-9 are located on the Mississippi River between river miles 797 and 648 and approximately between Red Wing, Minnesota and Prairie du Chien, Wisconsin.

DESCRIPTION: The original structures were placed in operation between 1936 to 1938. Each lock and dam consists of a lock (standard dimensions of 600 ft. long by 110 ft. wide), an uncompleted auxiliary lock, a dam consisting of movable gates to control river elevation, an earth embankment and an ungated overflow spillway. Work items under the major rehabilitation program are the replacement and/or refurbishing of the mechanical and electrical systems. This includes the machinery and control systems that operate the lock gates, the valves that control the level of water in the lock, and the movable gates of the dam.

AUTHORIZATION: River and Harbor Act of 1930.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio is not applicable because monetary benefits have not been quantified.

TOTAL BENEFIT-COST RATIO: The total benefit-cost ratio is not applicable because monetary benefits have not been quantified.

INITIAL BENEFIT-COST RATIO: The initial benefit-cost ratio is not applicable because monetary benefits have not been quantified.

BASIS OF BENEFIT-COST RATIO: The basis for the benefit-cost ratio is not applicable because monetary benefits have not been quantified.

SUMMARIZED FINANCIAL DATA

		Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost	$59,400,000	
Estimated Non-Federal Cost	0	
Total Estimated Project Cost	$59,400,000	
Allocations to 30 September 1995	29,353,000	
Conference Allowance for FY 1996	4,954,000	
Allocation for FY 1996	5,448,000 1/	
Allocations through FY 1996	34,804,000	59
Allocation Requested for FY 1997	5,600,000	68
Programmed Balance to Complete after FY 1997	18,999,000	
Unprogrammed Balance to Complete after FY 1997	0	

STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	51	Being Determined

PHYSICAL DATA

DAMS:	
Replace electrical systems	6 each
Replace/refurbish gate chains	29 each
LOCKS:	
Replace miter gate machinery	24 each
Replace tainter valve machinery	24 each
Replace electrical systems	6 each

1/ Reflects $218,000 reduction assigned as savings and slippage and $712,000 reprogrammed to the project.

JUSTIFICATION: The mechanical and electrical systems of the locks and dams have reached or exceeded their useful life of 50 years. Many of the mechanical components are custom made and a malfunction of any of the parts could shut down a lock for extended periods of time while replacement parts are being manufactured. A major failure of the mechanical system could close operation of the lock for 2 to 3 months. Frequent minor breakdowns which will close the lock for 2 to 3 days at a time are anticipated. Annual navigation benefits total $10,272,000.

DIVISION: North Central

DISTRICT: St. Paul

Mississippi River between Missouri River and Minneapolis, Minnesota, Locks and Dams Nos. 3, 5A, 6, 7, 8, and 9, Minnesota, Wisconsin, and Iowa (Major Rehabilitation)

DIVISION: North Central

DISTRICT: St. Paul

Mississippi River between Missouri River and Minneapolis, Minnesota, Locks and Dams Nos. 3, 5A, 6, 7, 8, and 9, Minnesota, Wisconsin, and Iowa (Major Rehabilitation)

18 MARCH 1996

912

FISCAL YEAR 1997: The requested amount of $5,600,000 will be applied as follows:

Continue: Lock System Work	$ 1,477,000
Continue: Dam System Work, bulkhead hoist system, and gate chains improvements	2,784,000
Planning, Engineering, and Design	1,126,000
Construction Management	213,000
Total	$5,600,000

NON-FEDERAL COST: Not applicable.

STATUS OF LOCAL COOPERATION: Not applicable.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $59,400,000 is an increase of $300,000 over the last estimate presented to Congress (FY 1996). This change includes the following items:

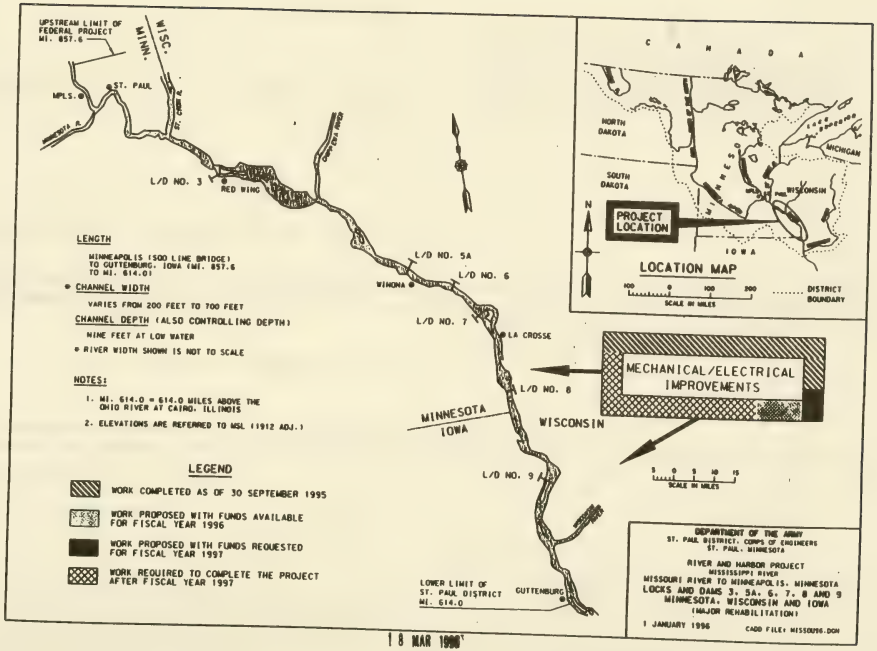
Item	Amount
Price Escalation on Construction Features	$ +300,000
Total	$ +300,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment was prepared in June 1987. The Finding of No Significant Impact was signed in August 1987. The Final Programmatic Environmental Impact Statement Record of Decision was signed 28 July 1989.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1986.

DIVISION: North Central DISTRICT: St. Paul

Mississippi River between Missouri River and Minneapolis, Minnesota, Locks and Dams Nos. 3, 5A, 6, 7, 8, and 9, Minnesota, Wisconsin, and Iowa (Major Rehabilitation)



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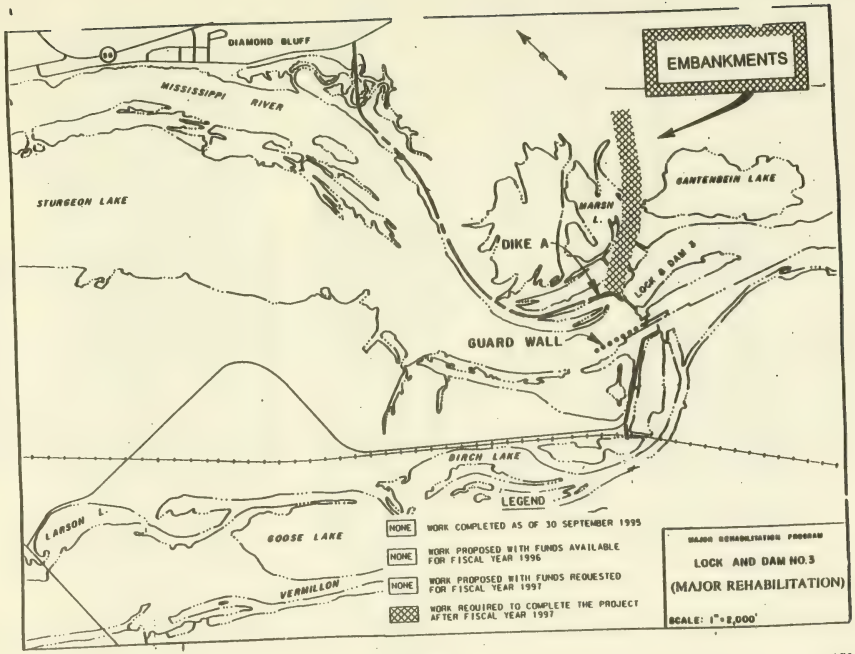

DIAMOND BLUFF
MISSISSIPPI RIVER
STURGEON LAKE
EMBANKMENTS
GANTENBEIN LAKE
MARSH L.
DIKE A
LOCK & DAM 3
GUARD WALL
BIRCH LAKE
LARSON L.
GOOSE LAKE
VERMILLON
LEGEND
NONE WORK COMPLETED AS OF 30 SEPTEMBER 1995
NONE WORK PROPOSED WITH FUNDS AVAILABLE FOR FISCAL YEAR 1996
NONE WORK PROPOSED WITH FUNDS REQUESTED FOR FISCAL YEAR 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FISCAL YEAR 1997
MAJOR REHABILITATION PROGRAM
LOCK AND DAM NO.3
(MAJOR REHABILITATION)
SCALE: 1"=2,000'

18 MAR 1996

U. S. ARMY CORPS OF ENGINEERS
NORTH PACIFIC DIVISION

DIVISION COMMANDER STATUS REPORT
TO
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES
ON
FISCAL YEAR 1997 BUDGET REQUEST

MARCH 21, 1996

MAJOR GENERAL RUSSELL L. FUHRMAN

DESCRIPTION OF DIVISION

The North Pacific Division includes the river basins of the Pacific Northwest and the entire state of Alaska. The division headquarters is in Portland, Oregon. Our four district offices are in Anchorage, Alaska; Portland, Oregon; Seattle, Washington; and Walla Walla, Washington.

OVERALL BUDGET REQUEST

Our budget request for Fiscal Year 1997 totals $346,144,000. General Investigations is about two percent; Construction, General 40 percent; and Operation and Maintenance, General 58 percent. Our overall request is about six percent higher than Fiscal Year 1996 allocations, principally due to construction requirements to mitigate for the impact of Corps projects on Columbia River salmon. In Fiscal Year 1995, we expended over $338 million, which was 93 percent of the total amount available and, in Fiscal Year 1996, we are making every effort to improve on that performance.

GENERAL INVESTIGATIONS

Our General Investigations request of $6,188,000 will continue 24 studies, four of which will be in the Preconstruction Engineering and Design (PED) phase. Eleven studies are in Alaska and of these nine address navigation. The 13 studies in the Pacific Northwest cover a variety of needs, including flood control, navigation, environmental restoration, hydropower and water supply. Highlights of our General Investigations program are presented below.

ALASKA NAVIGATION STUDIES

Alaska is highly dependent upon water-based transportation to serve many isolated communities and very important fisheries. We expect to complete PED at Cook Inlet, serving the city of Anchorage, and improvements at Chignik Harbor and St. Paul Harbor in Fiscal Year 1997. Other navigation studies are in the reconnaissance or feasibility phase for the Kuskokwim River and for harbors at Nome, Dutch Harbor, Sand Point, Seward and Wrangell.

COLUMBIA RIVER CHANNEL DEEPENING, OR AND WA

The study for deepening of the Columbia River channel is on schedule and will continue in the feasibility phase in Fiscal Year 1997. The increasing use of deeper-draft vessels and growing trade with Pacific Rim nations has created the need for a deeper channel to serve Columbia River ports.

SKAGIT RIVER, WA

The Skagit River Valley has a long history of flooding, and the recent floods caused extensive damage. In Fiscal Year 1996, we are completing a flood control reconnaissance study, and our Fiscal Year 1997 budget request contains funds to initiate the feasibility phase.

WILLAMETTE RIVER STUDIES, OR

In Fiscal Year 1995, we completed a South Santiam Fishery Restoration reconnaissance report which is now under review at the Washington, D.C. level. This study is addressing the restoration of migrating salmon above flood control dams. A similar reconnaissance study on the Middle Fork Willamette River is being continued this year and is scheduled to be completed in the budget year. The Willamette River Temperature Control study is on schedule for completion of PED in December 1997; this project will mitigate for water temperature impacts to salmon from Corps dams. We also have underway the Willamette River Basin Review study, examining potential changes to the existing 13 reservoir projects, which we expect to go into the feasibility phase this year and continue in Fiscal Year 1997.

JACKSON HOLE RESTORATION, WY

Environmental restoration associated with Corps levees on the Snake River in the vicinity of Jackson Hole is expected to move into the feasibility phase this year and continue into Fiscal Year 1997.

CONSTRUCTION, GENERAL

In the current year, Fiscal Year 1996, we are completing four projects.

The $140,200,000 requested for Construction, General in the budget year will fund work on twelve projects. In Fiscal Year 1997, we will be completing five projects, continuing five, and starting two.

KODIAK HARBOR, AK
SITKA HARBOR, AK
CHEHALIS RIVER (SO. ABERDEEN & COSMOPOLIS), WA
MUD MOUNTAIN DAM SAFETY, WA

This year, we are completing harbor improvements at Kodiak and Sitka in Alaska, flood control levees on the Chehalis River, and Mud Mountain Dam Safety in Washington. As noted below in the discussion of the February 1996 flood, the work on Mud Mountain Dam for safety-related improvements has already demonstrated its worth.

BETHEL, AK
BONNEVILLE POWERHOUSE (MAJOR REHAB. PHASE I), OR & WA
BONNEVILLE SECOND POWERHOUSE, OR & WA

Projects scheduled for completion in Fiscal Year 1997 include streambank erosion protection at Bethel, Alaska; the rehabilitation of electrical equipment at the Bonneville First Powerhouse; and the Bonneville Second Powerhouse project, which has some real estate activities pending.

COOS BAY, OR

The project to deepen the navigation channel at Coos Bay is to begin this year and be completed in one construction season, in Fiscal Year 1997.

HOWARD HANSON DAM SAFETY, WA

Due to a shortfall of Construction, General funds in Fiscal Year 1996, we rescheduled earthquake strengthening of the intake tower at Howard Hanson Dam to next year. This work is to be started and completed in one year.

BONNEVILLE POWERHOUSE (MAJOR REHAB.) PHASE II, OR & WA

We are continuing to rehabilitate the main generating units in the First Powerhouse at Bonneville Dam. This project is incorporating redesign of the turbines to be more benign for fish passage and more efficient for power.

COLUMBIA RIVER FISH MITIGATION, ID, OR & WA

This project implements the Corps' construction component of the Administration's plan for salmon mitigation related to the eight dams on the Lower Snake and Columbia rivers. The project primarily addresses the passage of juvenile salmon as they annually migrate downstream past the Corps dams. It is now based on the National Marine Fisheries Service (NMFS) Biological Opinion dated March 2, 1995 and the subsequent Record of Decision issued by the Corps of Engineers.

In addition to construction activities at the eight dams, the project includes a Mitigation Analysis of potential future measures that might be taken based on the outcome of studies and prototype development.

The large cost increase being reported this year is largely due to adding an allowance for an assumed set of potential future measures being evaluated in the Mitigation Analysis. Those measures are contingent upon the outcome of ongoing and planned studies and future coordination with other regional and Federal interests. Last year, the project cost estimate was primarily based upon scheduled construction and analysis for which at least preliminary decisions had been made. In addition, the project scope, while still subject to significant change, has been aligned with the NMFS Biological Opinion issued after the development of the Fiscal Year 1996 budget.

Additional information on this project is included in the section on Columbia River Salmon.

COLUMBIA RIVER TREATY FISHING ACCESS, OR & WA

This project provides fishing sites for Native American Tribes in lieu of those lost with the construction of Bonneville Dam. In Fiscal Year 1997, we will complete the construction of four sites on the Bonneville pool and begin construction of additional sites.

ELK CREEK LAKE, OR

Construction of this flood control dam has been halted by court injunction since 1987 with the dam at one-third its design height. Based on the current legal status, it is very uncertain as to when construction of the authorized project could resume. Accordingly, we are developing a long term management plan for the partially completed structure that seeks to minimize caretaking costs while providing effective fish passage.

LOWER SNAKE RIVER FISH & WILDLIFE COMPENSATION, ID, OR & WA

This project provides fish hatcheries and wildlife lands and facilities to compensate for losses associated with construction of the four Lower Snake River dams. The

major hatcheries have been essentially completed and are operational, and land acquisition has been completed. In Fiscal Year 1996, we are beginning a three-year juvenile fish acclimation facility test associated with the work included in the Fiscal Year 1995 Appropriations Act. Development of additional acclimation facilities and wildlife land development will continue into Fiscal Year 1997.

KAKE HARBOR, AK

In Fiscal Year 1997, we propose to start construction of major harbor improvements at Kake, Alaska.

THE DALLES POWERHOUSE (MAJOR REHAB), OR & WA

In the budget year, we are also proposing to start rehabilitation of The Dalles Powerhouse which has been in operation since 1957. As with the Bonneville turbines, we will evaluate the application of revised design to improve fish passage survival.

NEAH BAY, WA
POINT CHEHALIS, WA

In December 1995, we completed two projects under the Construction, General Continuing Authorities program: Neah Bay, a harbor breakwater benefiting a Native American tribe; and a shoreline protection project at Point Chehalis which protects public facilities in the city of Westport, Washington.

OPERATION AND MAINTENANCE, GENERAL

We are charged with the stewardship of a large investment in water resources infrastructure in the Columbia Basin and elsewhere in the region; including 18 major multipurpose power projects, 13 large flood control dams and numerous navigation projects. Our budget request of $199,756,000 will provide essential operation and maintenance for these facilities.

JOHN DAY POWERHOUSE (MAJOR REHAB.), OR & WA

Funds requested in Fiscal Year 1997 will be used to complete the rehabilitation of the John Day powerhouse.

ICE HARBOR NAVIGATION LOCK, WA

The navigation lock gate at Ice Harbor Dam required extensive repair this year. The work was completed on March 9, 1996, which restored service in time for the barging of juvenile salmon as required for our fish mitigation program.

COLUMBIA RIVER DREDGING, OR & WA

The flood in early February 1996 raised concern about shoaling in the Columbia River navigation channel. Initial surveys have indicated that some shoaling did take place, but dredging is being undertaken in our current year maintenance program and no impact on shipping is anticipated.

QUILLAYUTE RIVER, WA

The February flood caused significant damage to the navigation channel in the Quillayute River as the river broke through a sand spit and created a new outlet to the ocean. The solution to this problem is under review.

COLUMBIA RIVER SYSTEM OPERATION REVIEW

The Final EIS for the Columbia River System Operation Review (SOR) was completed in January 1996. This O&M-funded study examined alternative long-term strategies for balanced operation of the Federal Columbia River Hydrosystem. The SOR was a joint effort of the Bureau of Reclamation, the Bonneville Power Administration, and the Corps of Engineers. Because of ESA listings of Snake River salmon and Kootenai River Sturgeon, the SOR preferred alternative supports the NMFS and USFWS Biological Opinions for operation of the Columbia River System. The SOR also provides environmental coverage for Federal decisions on two Columbia River power operation agreements, the Pacific Northwest Coordination Agreement and the Canadian Entitlement Allocation Agreements.

COLUMBIA RIVER WATER MANAGEMENT

The NMFS Biological Opinion calls for high target flows and spill in 1996. The lower Snake River projects will again be operated to minimum levels during the fish passage season. The Corps will continue to barge and truck fish past the dams.

Recent years have been dry in the Columbia Basin. This year, however, has been very wet. Precipitation and the resultant snow pack were well above normal in November through January. In February 1996 the Pacific Northwest region endured the largest flood event since 1964 and the projection this year is for well above normal runoff for the remainder of the snowmelt season. Many of the reservoirs will fill by late June of early July, but increased flow augmentation for fish may not allow the reservoirs to remain full through the summer. These circumstances may impact water supply for fish, power, recreation and irrigation.

COLUMBIA RIVER SALMON

Three species of Snake River salmon listed under the Endangered Species Act migrate past Corps dams on the lower Snake and Columbia Rivers. The National Marine Fisheries Service's March 1995 Biological Opinion provides reasonable and prudent alternative measures to be taken at the dams, to avoid jeopardizing the continued existence of the listed species. The Corps' follow-up Record of Decision documents our intent to implement the measures to the extent we are able.

The Biological Opinion includes operational measures, near term construction actions, and evaluation of potential long term alternative dam operations and configurations for fish. Operational measures include flow augmentation, spills, juvenile fish transport, and lowered reservoir levels during the spring and summer salmon migration seasons. Construction activities include improvements to juvenile bypass systems; construction of a juvenile bypass system at Ice Harbor Dam; addition of barges to the fish transport system; installation of spillway deflectors to reduce gas supersaturation from spill; PIT (passive integrated transponder) tag monitoring facilities at John Day and Bonneville dams; and others.

For the long term, the Biological Opinion calls for evaluation and implementation of further improvements to existing fish bypass systems, and study of alternative structural configurations at the dams for improved salmon passage and survival. These alternatives include: natural river level drawdowns of four lower Snake River reservoirs; surface bypass systems that guide juvenile fish in the upper portion of the water column and potentially reduce needed spill for fish; improved gas abatement during spill; refined turbine design to reduce turbulence and negative pressures; and light and sound generation, as well as physical barriers, to guide fish. Research efforts continue concurrently, including evaluation of in-river migration versus transport of juvenile fish, study of juvenile fish survival and travel time through the reservoirs, and various aspects of fish behavior.

The Corps continues to coordinate planning and implementation of these actions with the region in technical as well as policy forums involving staff and management from federal and state agencies, tribes, the Northwest Power Planning Council, and interest groups. Budget constraints have heightened regional parties' interest in influencing Corps work priorities. We have found ourselves changing course at times in response to regional requests.

In 1996 the Corps will continue to implement the operational measures in the Biological Opinion as we did for the 1995 fish migration season. Construction activities also continue, with new juvenile bypass facilities at Ice Harbor scheduled for April 1996 completion. We installed and tested several types of guidance systems for surface

bypass at Ice Harbor and The Dalles dams in spring 1995 to determine the effects on fish behavior. Studies will continue this spring at The Dalles. At Lower Granite Dam a three-slot, variable opening powerhouse surface collector prototype will be installed for testing in 1996. At Bonneville Dam, we will test the sluiceway and trash chute as part of surface bypass development efforts. Hydraulic modeling, hydroacoustic monitoring and radio tracking of juvenile fish will be conducted. Extended length fish guidance screens are being installed in the existing juvenile bypass systems at Lower Granite, Little Goose and McNary dams. In Fiscal Year 1997, we are scheduled to begin construction of spillway flow deflectors at Ice Harbor and John Day dams for dissolved gas abatement.

THE WINTER FLOODS OF 1995-1996

In early December 1995, Northwestern Oregon and Western Washington suffered a flood induced by a winter rain storm dubbed a "pineapple express" for its origin near Hawaii. Most of the storage reservoirs in the Northwest were not at minimum levels because they do not have a requirement for flood control space at that time of year. However, the flooding was reduced by storing water in a number of Corps projects, and Corps flood fight teams were deployed.

Last month, in early February, the Pacific Northwest experienced another, larger and more wide-spread flood in Oregon, Washington, Idaho and western Montana, following record rainfall throughout the region and warm air from the tropical Pacific. This event was also a pineapple express and occurred following a period of heavy snow and freezing temperatures.

Flood damages would have been far worse, were it not for the system of flood control dams and levees designed, constructed and operated by the Corps of Engineers.

The Willamette River at Portland would have been seven feet higher without Corps dams, and would have severely flooded downtown businesses. The Columbia River at Vancouver, Washington, also would have been seven feet higher without upstream storage projects.

In all, Corps projects in the Pacific Northwest are credited with preventing flood damages totaling more than $3.2 billion, about $1.1 billion of which would have been in the Portland area.

Corps flood fighting teams also reduced flood damages by protecting levees in Oregon, Washington, Idaho and western Montana, and constructing emergency flood works at several locations.

The Corps negotiated with British Columbia Hydropower in Canada to reduce releases at its large Columbia River Treaty storage projects from 94,000 cubic feet per second to less than 15,000 cfs. Flows at Grand Coulee Dam, operated by the Bureau of Reclamation, were dropped from 141,000 cfs

to 50,000 cfs. Other project owners also responded by cutting back flows and storing water as coordinated by the our Reservoir Control Center. This experience demonstrates the value of operating the projects in the Columbia Basin as a system.

Due to the vast amount of water stored and not available for hydroelectric power, the Bonneville Power Administration had to purchase $5 million in outside energy to meet the region's power needs.

Mud Mountain Dam on the White River east of Tacoma, Washington, held back water from what would have been a 500-year event downstream on the Puyallup River. Without the dam, the river would have overtopped its levees and spilled several feet of water onto the highly industrialized lower Puyallup valley. The flooding put to the test the major dam safety construction on the dam, which was completed in October at a cost of $70 million. In this one event, the dam prevented an estimated $115 million in damages.

Both December and February floods were declared Federal Disasters by the President. The Corps is continuing to support the Federal Emergency Management Agency in post flood activities.

CONCLUSION

In summary, our year is highlighted by accomplishments that include the development of navigation projects in Alaska, mitigation for salmon in the Columbia Basin, prevention of flood damages from the Flood of 1996, and the continued delivery of multiple services that our programs provide the region and the nation.

U. S. ARMY CORPS OF ENGINEERS
CIVIL WORKS PROGRAM

CONGRESSIONAL SUBMISSION
FISCAL YEAR 1997

NORTH PACIFIC DIVISION

Budgetary information will not be released outside the Department of the Army until 18 March 1996.

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

NORTH PACIFIC DIVISION

Table of Contents

	Page No.
Surveys	
Aniak, Alaska	12
Chena River Watershed, Alaska	15
Chief Joseph Pool Raise, Washington	19
Columbia River Navigation Channel Deepening Study, Oregon and Washington	9
Dutch Harbor, Alaska	2
Duwamish/Green River, Washington	20
Howard Hanson Dam, Additional Storage, Washington	28
Jackson Hole Restoration, Wyoming	24
Kuskokwim River, Alaska	3
Lake Washington Ship Canal, Washington	27
Middle Fork Willamette Fishery Restoration, Oregon	16
Nome Harbor, Alaska	4
Puget Sound Confined Disposal Site (s), Washington	11
Sand Point Harbor, Alaska	5
Seward Harbor, Alaska	7
Skagit River, Washington	13
Stillaguamish River, Washington	22
Walla Walla River Watershed, Oregon and Washington	18
Willamette River Basin Review Study, Oregon	26
Wrangell Harbor, Alaska	8

18 March 1996

23-577 96-30

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

NORTH PACIFIC DIVISION

Table of Contents

	Page No.
Preconstruction Engineering and Design	
Chignik Harbor, Alaska	29
Cook Inlet, Alaska	30
St. Paul Harbor, Alaska	31
Willamette River Temperature Control, Oregon	33
Construction	
Bethel Bank Stabilization, Alaska	48
Bonneville Powerhouse (Phase I), Oregon and Washington (Major Rehabilitation)	83
Bonneville Powerhouse (Phase II), Oregon and Washington (Major Rehabilitation)	87
Bonneville Second Powerhouse, Oregon and Washington	63
Columbia River Fish Mitigation, Washington, Oregon and Idaho	72
Columbia River Treaty Fishing Access Sites, Oregon and Washington	68
Coos Bay, Oregon	43
Elk Creek Lake, Oregon	52
Howard Hanson Dam, Washington (Dam Safety)	59
Kake Harbor, Alaska	34
Lower Snake River Fish and Wildlife Compensation, Washington, Oregon and Idaho	79
The Dalles Powerhouse, Oregon and Washington (Major Rehabilitation)	39
Operation and Maintenance	91
John Day Powerhouse, Oregon and Washington (Major Rehabilitation)	114

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

SUMMARY NORTH PACIFIC DIVISION

	FY 1996 Allocations	FY 1997 Request	Increase or Decrease
General Investigations			
Surveys	$ 3,706,000	$ 4,812,000	$ +1,106,000
Preconstruction Engineering and Design	1,201,000	1,376,000	+175,000
Subtotal General Investigations	4,907,000	6,188,000	+1,281,000
Construction, General			
Construction	115,278,000	138,800,000	+23,522,000
Dam Safety Assurance	0	1,400,000	+1,400,000
Subtotal Construction, General	115,278,000	140,200,000	+24,922,000
Operation and Maintenance, General			
Project Operations	84,432,000	89,324,000	+4,892,000
Project Maintenance	119,037,000	108,366,000	-10,671,000
Major Rehabilitation	2,659,000	2,066,000	-593,000
Subtotal Operation and Maintenance	206,128,000	199,756,000	-6,372,000
GRAND TOTAL, NORTH PACIFIC DIVISION	$326,313,000	$346,144,000	$+19,831,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
1. SURVEYS - NEW - None					
2. SURVEYS - CONTINUING					
2a. Navigation Studies:					
ALASKA					
Dutch Harbor	900,000	591,000	161,000	148,000	0

The study area includes The City of Unalaska and Port of Dutch Harbor, located on Unalaska Island of the Aleutian Islands of Alaska. Unalaska-Dutch Harbor was found in the Northern Sea Route Reconnaissance Report to be a potential transshipment point where cargo from the western United States and Canada would be transferred to ice-strengthened vessels for the Northern Sea Route journey. The Reconnaissance Report included a supplement volume which was completed in July 1995, addressing navigation problems at Unalaska-Dutch Harbor. The report recommends a cost-shared feasibility study at Unalaska-Dutch Harbor, based on the apparent feasibility of channel improvements at the outer entrance to the port area and at East Channel, which leads into the naturally enclosed Illiuliuk Harbor. These improvements appear to be justified by transportation savings related to existing ship traffic and do not rely on the future of the Northern Sea Route for economic feasibility. Deep-draft container ships bound from the western United States to Japan stop at Unalaska-Dutch Harbor to receive processed seafood for export. These large ships are delayed by a rocky bar at the entrance to Illiuliuk Bay. A plan to dredge this rocky shoal warrants further evaluation. Medium draft ships which supply seafood processing plants and pick up seafood products for export are delayed and endangered during rough weather by conditions at East Channel. East Channel includes an authorized federal channel which was excavated to 24 feet depth at Mean Lower Low Water in 1940. The width, depth, and alignment of this channel subject these ships to delays and excessive risk of grounding on the rocky coast. The city of Unalaska understands the cost-sharing of feasibility studies and construction as required by the Water Resources Development Act of 1986 and they have indicated willingness to pursue the needed funding.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase and if the reconnaissance report is in accord with policy, continue into the feasibility study. Fiscal Year 1997 funds will be used to continue the feasibility

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2a. Navigation Studies, Alaska, Unalaska/Dutch Harbor (Cont'd)

study, including engineering, economic and environmental analyses of needed navigation improvements. The preliminary estimated cost of the feasibility phase is $600,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. The city of Unalaska is the local sponsor. Up to one half of the non-Federal share may be in-kind services.

A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,200,000
Reconnaissance Phase (Federal)	600,000
Feasibility Phase (Federal)	300,000
Feasibility Phase (non-Federal)	300,000

The reconnaissance phase is scheduled for completion in March 1996. The schedule for completion of the feasibility study is being determined.

Kuskokwim River	375,000	0	130,000	238,000	7,000

Kuskokwim River is one of the primary waterways used for inland navigation in Alaska. All communities along the river depend on it for transportation of vital supplies and fuel because no connecting road system exists. The navigation season usually ends by mid October because of ice cover on the river. Extending the navigation season would enable scheduling of fuel and cargo deliveries later in the fall so the more expensive air freight shipments could be reduced. The state of Alaska also believes that considerable savings of costs for new large tanks could occur if a dependable, longer navigation season existed. Many of the tank farms at the communities along this river are aged and need replacement; smaller replacement tanks could be used in some cases if late season delivery of fuel could be depended upon. This could save millions of dollars in capital costs and reduce maintenance costs and safety hazards by limiting inventories. Recent developments in ice control technologies including shallow draft ice breakers and channel improvements are worthy of consideration. These measures may also reduce flooding from ice jams in the spring. The

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
2a. Navigation Studies, Alaska, Kuskokwim River (Cont'd)					

Governor and the Alaska Department of Commerce and Economic Development expressed support for this study in March 1994 and are willing to cost share 50-50 percent of the feasibility phase that may follow the reconnaissance study. The State Legislature indicated support for improved navigation on the Kuskokwim River in a May 1995 resolution.

Fiscal Year 1996 funds are being used to initiate the reconnaissance study at full Federal expense. The study will focus on possible navigation improvements to reduce transportation costs and extend the navigation season. Fiscal Year 1997 funds will be used to continue the reconnaissance phase. The schedule for completion of the reconnaissance phase is being determined.

Nome Harbor	670,000	0	208,000	160,000	302,000

Nome Harbor is a major trans-shipment point for north western Alaska communities. Cargo shipped to Nome has averaged about 33,000 tons per year since 1986. Ocean-going barges transfer their cargo to smaller vessels which then deliver commodities to western Alaska communities. The existing harbor and jetties which were constructed in 1923 need modification and replacement. However, jetty replacements in-kind would cost millions of dollars and would not correct wave problems that currently cause significant damage to barges and project structures. Each year barges incur thousands of dollars damage when wave action causes them to ram the sheetpile entrance channel wall which has required millions of dollars of repair about every 10 years. There are also maintenance and safety problems at the existing harbor facilities. The existing sheet-pile entrance channel walls reflect waves into the harbor area which causes significant damage. The entrance jetties are undermined and have failed; they should be repaired, replaced or relocated. Bottom sediments within the upper turning basin of the harbor are contaminated and cannot be placed offshore; a new disposal site for the contaminated sediments must be found. A causeway, with a channel design depth of -20 feet, was constructed near the harbor and is used for docking ocean barges but the channel is too shallow to accommodate larger draft vessels. The construction of the causeway has interrupted the littoral drift in this area and erosion is occurring along the sand spit adjacent to the existing harbor entrance channel. A comprehensive evaluation of navigation improvements would determine measures to reduce damages to vessels and structures and transportation costs for the area. Discussions were held with Nome officials in May 1993 and in 1994 to review the nature and scope of the

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2a. Navigation Studies, Alaska, Nome Harbor (Cont'd)

study and they have expressed a willingness to cost share the feasibility phase studies that may follow. The City of Nome would be the local sponsor.

Fiscal Year 1996 funds are being used to initiate the reconnaissance phase. The study will concentrate on comprehensive plans to reduce damages to vessels and structures and transportation costs, an analysis of vessel sizes and drafts, the need for a small boat harbor, and options for disposal of contaminated dredged material. The ability of the existing harbor to satisfy existing and proposed navigation needs will be examined. If the reconnaissance report is certified to be in accord with policy, fiscal year 1997 funds will be used to initiate the feasibility study. The preliminary estimated cost of the feasibility phase is $700,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services.

A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$1,020,000
Reconnaissance Phase (Federal)	320,000
Feasibility Phase (Federal)	350,000
Feasibility Phase (non-Federal)	350,000

The reconnaissance phase is scheduled for completion in July 1997. The schedule for completion of the feasibility study is being determined.

Sand Point Harbor	726,000	301,000	25,000	100,000	300,000

Sand Point is a commercial fishing community located in the Shumagin Islands 570 miles southwest of Anchorage and about midway between Kodiak and Dutch Harbor. The 150 available spaces in the harbor are heavily used by locally based and transient vessels. The need for additional moorage has intensified in recent years due to full Americanization of the bottomfish harvest (2 million metric tons per year in the Bering Sea/Aleutian Island region) and increased harvest of

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2a. Navigation Studies, Alaska, Sand Point Harbor (Cont'd)

tanner crab. A draft feasibility report, prepared in 1986 under Section 107 navigation authority of the 1960 River and Harbor Act, suggested expanding the harbor to accommodate an additional 75 commercial vessels by enclosing another 16 acres behind a breakwater. The cost of that plan was about $12 million with a benefit-cost ratio of 1.3. Due to the $4 million Federal cost limit on each Section 107 harbor project, the local cost share was too high to finance at that time.

The East Aleutian Borough requested reactivation of a harbor study in December 1991. They indicated that Sand Point has now developed all useable area in the existing harbor and excessive crowding is causing delays and damage to facilities and vessels. The 1986 study estimated significant savings primarily due to reduced travel costs and avoidance of damage to vessels if the harbor were expanded. Sand Point and the East Aleutian Borough are willing to meet the local cost sharing requirements for a feasibility study and subsequent project construction in accordance with the provisions of the 1986 Water Resources Development Act.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase. If the reconnaissance report is certified to be in accord with policy, fiscal year 1997 funds will be used to initiate the feasibility study. The preliminary estimated cost of the feasibility phase is $800,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services.

A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,126,000
Reconnaissance Phase (Federal)	326,000
Feasibility Phase (Federal)	400,000
Feasibility Phase (Non-Federal)	400,000

The reconnaissance phase is scheduled for completion in July 1996. The schedule for completion of the feasibility study is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
2a. Navigation Studies, Alaska (Cont'd)					
Seward Harbor	432,000	97,000	75,000	100,000	160,000

Seward, 120 miles south of Anchorage, occupies the northern head of mountainous Resurrection Bay, a fjord which extends southward 15 nautical miles to open on the Gulf of Alaska. The town is accessible by rail, highway, air, sea, and is regularly visited by Anchorage residents for boating and other recreational purposes. Seward and the surrounding area have a population of about 4,000 permanent residents. The Seward waterfront includes commercial port terminals, seafood processors, and a ship repair facility. Seward is a routine stop for ferry vessels of the Alaska Marine Highway System and is also a port of call for commercial cruise ships. It is home port to a diverse fleet of commercial fishing and recreational vessels, which has grown beyond the capacity of Seward's existing boat harbor. Over 700 vessels are on the wait list for space in the harbor. Several large tour boats provide day trips to the Kenai National Fjords National Park from Seward. About $1.2 million a year in damages and other expenses are incurred by the Seward fleet due to the lack of sufficient protected moorage. A study completed in 1982 under the authority of Section 107 of the 1960 Rivers and Harbors Act, as amended, recommended construction of a new boat harbor at Nash Road on the east side of Resurrection Bay. That project was not constructed because the local cost share for breakwaters and dredging exceeded $14 million. The city of Seward requested January 8, 1990, that the Corps of Engineers again investigate the feasibility of harbor improvements. In October 1992, Seward passed a resolution indicating its willingness and ability to meet the cost sharing requirements of the Water Resources Development Act of 1986. A reconnaissance phase initiated in December 1993, was deferred, while the city of Seward evaluated a proposal by a private developer for harbor improvements. A successful harbor development plan was not executed between a private developer and the city of Seward. Therefore, the city then requested reactivation of the study in February 1995.

Fiscal year 1996 funds are being used to complete the reconnaissance phase. If the reconnaissance report is certified to be in accord with policy, Fiscal Year 1997 funds will be used to initiate the feasibility phase of study. The preliminary estimated cost of the feasibility phase is $520,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2a. Navigation Studies, Alaska, Seward Harbor (Cont'd)

A Summary of the study cost sharing is as follows:

Total Estimated Study Cost	$ 692,000
Reconnaissance Phase	172,000
Feasibility Phase (Federal)	260,000
Feasibility Phase (non-Federal)	260,000

The reconnaissance phase is scheduled for completion in November 1996. The schedule for completion of the feasibility study is being determined.

Wrangell Harbor	700,000	0	130,000	200,000	370,000

The city of Wrangell is located at the north end of Wrangell Island in southeastern Alaska, approximately 740 miles northwest of Seattle, WA, and 150 miles south of Juneau. The existing harbor was constructed by the Corps in 1926 and improved in 1936 and 1951. The harbor has three main navigational problems: (1) it is too shallow for many of the modern vessels currently using it; (2) the wave protection is insufficient to protect vessels moored near the entrance; and (3) it is overcrowded. Project depth for the existing harbor is -10 feet MLLW, which does not allow many of the larger vessels freedom of movement during the lower tide stages. This limits their access to docks, mooring areas and other facilities; causes damage to the mooring systems; and is a safety hazard. Waves from the northwest enter the harbor, causing damage at transient mooring areas where vessels can be rafted up to four or five deep. This wave action and the resulting excessive stress damage the vessels and the mooring floats. Overcrowding of harbor facilities is most common during the summer commercial fishing season. Approximately 240 vessels are wait-listed for permanent moorage in the harbor. The existing harbor site could be expanded and deepened to accommodate the vessels waiting for moorage, or any of several potential new harbor sites could be developed to handle the larger, deeper-draft vessels, provide good wave protection, and eliminate most of the overcrowding.

Fiscal Year 1996 funds are being used to initiate the reconnaissance phase at full Federal expense. Fiscal year 1997

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2a. Navigation Studies, Alaska, Wrangell Harbor (Cont'd)

funds will be used to complete reconnaissance phase, and if the reconnaissance report is certified to be in accord with policy, to initiate the feasibility study. The preliminary estimated cost of the feasibility phase is $800,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. The City of Wrangell is the likely local sponsor and submitted a letter in March 1994 expressing its willingness to cost share the feasibility study that may follow.

A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$1,100,000
Reconnaissance Phase (Federal)	300,000
Feasibility Phase (Federal)	400,000
Feasibility Phase (non-Federal)	400,000

The reconnaissance phase is scheduled for completion in June 1997. The schedule for completion of the feasibility study is being determined.

OREGON

Columbia River Navigation Channel Deepening Study	4,228,000	1,775,000	450,000	600,000	1,403,000

Lower Columbia River ports have been the primary shipping point for West Coast grain and feed grain exports for many years. More than 33 million tons of commerce valued at $9 billion were shipped to or from Lower Columbia River ports in 1990. Increasing trade between the Pacific Northwest states and the Pacific Rim nations has accentuated the need for a deepened navigation channel in the Lower Columbia River, to accommodate larger, deeper-draft vessels. The existing authorized 40-foot channel depth restricts larger bulk carrier vessels to partial loading, or to delay sailing until the right combination of river flow and tides exist. For these reasons, a coalition of the Lower Columbia River Ports (the

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2a. Navigation Studies, Oregon, Columbia River Navigation Channel Deepening Study (Cont'd)

Ports of Portland, Astoria, and St. Helens in Oregon, and Vancouver, Kalama, Longview, and Woodland in Washington) have requested a study be conducted to evaluate the potential for deepening the navigation channel. This would allow deeper draft vessels to sail safely with fewer delays thereby reducing commodity movement costs. In a letter dated 17 January 1990, representatives from the Lower Columbia Ports coalition supported the reconnaissance phase study and stated that they were willing to comply with the cost sharing requirements of the Water Resources Development Act of 1986. The Reconnaissance Report was approved on 14 August 1992, and released for public distribution on 19 October 1992. In a letter dated 22 April 1994, the ports have indicated that they would participate in the feasibility study. The Feasibility Cost Sharing Agreement (FCSA) was signed on 21 June 1994, and the feasibility study initiated in July 1994. The local sponsor for the feasibility study is the Port of Portland. The Port has enacted third party agreements with the remaining six Lower Columbia Ports to establish their roles and financial support of the feasibility study.

The study area begins at the mouth of the Columbia River and extends upstream to the vicinity of the Port of Vancouver, Washington (approximately river mile 105), and also includes the Lower Willamette River from its confluence with the Columbia River (river mile 101.5) upstream to the vicinity of downtown Portland (approximately river mile 11).

Fiscal Year 1996 and Fiscal Year 1997 funds will be used to continue the feasibility study. The estimated cost of the feasibility phase is $6,100,000, which is to be shared on a 50-50 percent basis by the Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services.

A summary of study cost sharing is as follows:

Total Estimated Study Cost	$ 7,278,000
Reconnaissance Phase (Federal)	1,178,000
Feasibility Phase (Federal)	3,050,000
Feasibility Phase (Non-Federal)	3,050,000

The schedule for completion of the feasibility study is being determined.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1997

North Pacific Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
2a. Navigation Studies (Cont'd)					
WASHINGTON					
Puget Sound Confined Disposal Site(s)	1,350,000	222,000	189,000	330,000	609,000

The State of Washington Department of Ecology has verified the need for public multi-user disposal sites which can accommodate contaminated sediments from navigation projects and other sources. The lack of confined disposal sites is limiting maintenance dredging of Federal and non-Federal navigation projects. The widespread public attitude is for confined disposal sites which meet the needs of both Federal and non-Federal navigation projects and sediment clean-up for low and moderately contaminated dredged material. In May 1991, the U.S. EPA approved the Puget Sound Water Quality Management Plan as the Federal Comprehensive Conservation and Management Plan (CCMP) for Puget Sound. The CCMP calls for identification of contaminated sediment areas and subsequent clean-up of these areas. Because of recognized technical expertise, the Corps of Engineers, Seattle District, has been asked to undertake in partnership with the State of Washington, Puget Sound Water Quality Authority, U.S. EPA, and Puget Sound ports, further studies which could lead to establishment of public multi-user confined disposal sites on Puget Sound and thereby result in substantial navigation benefits.

The State of Washington Departments of Ecology and Natural Resources and the Washington Public Ports Association are aware of the cost-sharing requirements of Corps planning studies as set forth in WRDA 1986 (P.L. 99-662), as amended, and are prepared to share costs of the feasibility phase study. Senator Slade Gorton, in a letter to ASA(CW) dated 13 January 1994, requested Corps involvement in the study and expressed strong interest in environmentally safe disposal of contaminated sediments. By letter dated 28 March 1994, Dr. John Zirschky, Acting ASA(CW), expressed support for such involvement by the Corps.

Fiscal Year 1996 funds will be used to complete the reconnaissance phase, and if the reconnaissance report is certified to be in accord with policy, to initiate the feasibility study. Fiscal Year 1997 funds will be used to continue the feasibility study. The preliminary estimated cost of the feasibility phase is $2.0 million which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2a. Navigation Studies, Washington, Puget Sound Confined Disposal Site(s) (Cont'd)

services.

A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,350,000
Reconnaissance Phase (Federal)	350,000
Feasibility Phase (Federal)	1,000,000
Feasibility Phase (non-Federal)	1,000,000

The reconnaissance report is scheduled for completion in May 1996. The schedule for completion of the feasibility study is being determined.

2b. Flood Damage Prevention:

ALASKA

Aniak	150,000	0	37,000	113,000	0

Aniak, on the Kuskokwim River in southwestern Alaska, experiences severe floods every 4 years or less on average. The city is a service and transportation center for other communities on the river and a transfer point for the commercial fishing industry. A technical report was completed in November 1991 under the authority of Section 205 of the 1948 Flood Control Act, as amended, which showed that a $20 million ring levee was economically feasible and would prevent an average annual $1.7 million of flood damage. However, the continuing authority Federal funding limit of $5 million would have required Aniak to pay $15 million which was beyond their ability to fund. If the project were authorized by Congress, project cost sharing would be in accordance with the provisions of the Water Resources Development Act of 1986, and local interests would only have to pay for 25 percent of the costs and would get credit for lands provided. Ice jams that form in the river each spring cause the most frequent and most severe floods, sometimes accompanied by

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2b. Flood Damage Prevention Studies, Alaska, Aniak (Cont'd)

erosion of a levee system built to keep ice flows out of the city. Recent expansion of the airport facilities and growth of the community makes flood damage reduction even more urgent. In May 1993, the city of Aniak requested a study of the area to determine appropriate measures for reducing the threat to life and property associated with the frequent flooding of the city and ice damage to the existing levee system constructed in 1951 to protect an important airport runway. Studies will concentrate on evaluating measures to reduce flood damages, including flood proofing structures and other lower cost alternatives. The city is willing to cost share the feasibility study and project in accordance with the Water Resources Development Act of 1986. Alaska Department of Transportation and Public Facilities is willing to help the city share the feasibility study cost.

Fiscal Year 1996 funds will be used to initiate the reconnaissance phase at full Federal expense. Fiscal year 1997 funds will be used to continue reconnaissance phase. The schedule for completion of the reconnaissance phase is being determined.

WASHINGTON

Skagit River	1,510,000	435,000	75,000	350,000	650,000

The Skagit River Valley, located in Skagit County, Washington, has a long history of flooding since the area was first settled in the mid-1800s. In the lower area below Sedro Wooley, the maximum safe channel capacity varies from 100,000 cubic feet per second (cfs) to 146,000 cfs. Since 1908, 100,000 cfs has been exceeded 17 times during the winter floods, October through March. In November 1990, during the previous flood of record, the flood peaked at 148,700 cfs at the town of Concrete and 152,000 cfs (9.4 feet above flood stage) at the city of Mount Vernon. During the most recent flooding in late November 1995, the flood peaked at 159,000 cfs at Concrete (a new record) and 135,000 cfs at Mount Vernon (9.3 feet above flood stage). Partial flood protection is provided by a combination of upstream storage at hydroelectric projects and downstream local flood protection works. However, flood damages continue at $11.1 million on an average annual basis (October 1990 price level).

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2b. Flood Damage Prevention Studies, Washington, Skagit River (Cont'd)

The November 1990 floods caused severe damage throughout the lower basin. Major damage was experienced on Fir Island, near Mount Vernon, in mid-basin at Cockerhan Island and the town of Hamilton. The most severe flooding occurred as a result of the levee failure at Fir Island in the November 11th flood and again in the November 25th flood. These failures caused heavy losses to public and private property all across Fir Island opening prime farmland to scoured deposition and salt water flooding. The total damage, public and private, from the two November 1990 floods is estimated at approximately $45 million. During the November 1995 flood events, extensive flood fighting efforts prevented major damage from occurring.

A major levee project authorized in 1966 and modified in 1979, if constructed, would improve flood protection for the lower valley. The project was deferred because of lack of acceptance by basin citizens. Local interests currently believe that a different project would better serve the basin and could gain widespread acceptance and support. By letter dated 28 December 1990, Skagit County officials requested Corps of Engineers assistance in finding a solution to the flooding problems in the basin. A variety of flood control and nonstructural flood damage reduction measures must be considered in a comprehensive basin-wide approach, involving all interested citizens of the basin.
The study was deferred at the request of the Sponsor in 1994. Skagit County, by letter dated 10 January 1996, has requested the Corps of Engineers to reinstate and pursue the Skagit Study.

Fiscal Year 1996 funds are being used to complete reconnaissance phase. If reconnaissance report is certified to be in accord with policy, Fiscal Year 1997 funds will be used to initiate feasibility study. The preliminary estimated cost of the feasibility phase is $2.0 million, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services.

A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,510,000
Reconnaissance Phase (Federal)	510,000
Feasibility Phase (Federal)	1,000,000
Feasibility Phase (non-Federal)	1,000,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2b. Flood Damage Prevention Studies, Washington, Skagit River (Cont'd)

The reconnaissance phase is scheduled for completion in October 1996. The schedule for completion date of the feasibility study is being determined.

2c. Special Studies:

ALASKA

Chena River Watershed	380,000	0	100,000	223,000	57,000

The Chena River, a tributary of the Tanana River (a Yukon River tributary), originates in a mountainous area about 90 air miles east of Fairbanks in central Alaska. The river flows in a southwesterly direction from its mountainous headwaters, terminating at its confluence with the Tanana River at Fairbanks. The total drainage area is 2,070 square miles. The Chena River has clear water not influenced by glacial runoff and includes many groundwater sources along its way. Several sources are geothermally heated, such as the Chena Hot Springs on the North Fork, which reaches temperatures to 160 F. The discharge of the Chena River at Fairbanks ranges from 100 to 74,400 cfs, averaging 1,344 cfs. Maximum discharge usually occurs in the period from May to September from a combination of snowmelt and heavy rainfall. Extreme low flows occur in winter when the river is frozen and air temperatures are as low as -60°F. Vegetation within the watershed consists of forested mountains and alpine tundra near the headwaters and muskeg and scrub near the mouth. Low areas are covered by black spruce, willow, and sedge with brush patches, pothole lakes, and tussock flats scattered throughout. About 75 regulatory actions per year have been processed regarding wetlands, and increased activity is expected in the future as development expands. Some wetland mapping was done in 1987, but additional mapping would help define wetland values and functions and provide opportunities for general permits and restoration of critical wetlands. Approximately 50 per cent of the watershed is underlain by permafrost. The Chena River Lakes Flood Control Project, with construction completed in 1981, consists of a 7.1 mile-long earth-fill diversion structure (Moose Creek Dam) and floodway 17 miles east of Fairbanks for diversion of Chena River flood flows into the Tanana River; a levee along the Tanana River extending from the floodway to the confluence of the Chena and Tanana Rivers; and an interior drainage system on the Fairbanks side of the dam and levee. The concrete gravity gate 2c.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

Special Studies, Alaska, Chena River Watershed (Cont'd)

structure, located in the dam at the Chena River, is operated to limit the flow in the Chena River to 12,000 cfs at Fairbanks. The community of North Pole, Alaska is located near the floodway and has experienced flooding of crawl spaces, basements, septic systems, and wells during operation of the flood control works. Public concern has been expressed in various public meetings in the regional media for these occurrences of high ground water in North Pole and for adverse affects of population growth and development on fish and wildlife in the Chena River watershed. The Chena River is popular for sport fishing and much of the watershed is likewise popular for sport hunting. A significant number of residents in this area of Alaska depend on these fishing and wildlife resources for subsistence. The watershed includes environmentally sensitive wetlands that could be affected by future urbanization and mining operations in the region or developments at Fort Wainwright in Fairbanks. Fish migration has declined in recent years and the reasons for this decline are unclear at present.

The study would integrate protection and restoration of wetlands into the flood control and needs of the watershed. It will identify means to eliminate, attenuate, or otherwise mitigate fish and wildlife resource adversity, and will propose measures with a Federal interest which are economically justified or otherwise in keeping with current administrative policy. The Fairbanks North Star Borough, which encompasses the entire watershed, is the likely local sponsor. It understands the cost sharing that would be needed for a feasibility study.

Fiscal Year 1996 funds are being used to initiate the reconnaissance phase at full Federal expense. Fiscal Year 1997 funds will be used to continue reconnaissance phase. The schedule for completion of the reconnaissance phase is being determined.

OREGON

Middle Fork Willamette Fishery Restoration	450,000	12,000	259,000	179,000	0

The Willamette River Basin is located in northwestern Oregon and contains approximately 12,000 square miles. The basin is the most populated area in the state and is highly developed. During the last 40 years, 13 Corps' reservoirs have

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2c. Special Studies, Oregon, Middle Fork Willamette Fishery Restoration (Cont'd)

been constructed primarily to control floods, generate power, and provide water for navigation and irrigation. Secondary water use is to provide benefits through greater recreational opportunities and improved fish and wildlife habitat through flow augmentation. The State of Oregon, along with local interests, have requested that the Corps evaluate options which will enable anadromous fish to pass upstream and downstream through the three existing dams (Dexter, Lookout Point and Hills Creek Lakes) in the Middle Fork Willamette River system. When the dams were constructed, fish passage was not developed so the lost production capability for the areas upstream of the projects was mitigated through hatchery production. In recent years, Congressional interests, as well as the Northwest Power Planning Council, The Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians and State and Federal resource agencies have expressed their concerns about the depletion of anadromous fish populations, especially native runs. They have increased their demands that the Corps restore fish migration capabilities, reestablish native runs, and rebuild anadromous fish populations within the basin. Key components of the reconnaissance study would be the assessment of upstream fish habitats, the engineering and design of fish bypass structures and the modification of reservoir operations during heavy migration periods to accommodate juvenile downstream and adult upstream passage of anadromous fish. The Oregon Department of Fish and Wildlife has formally requested and strongly encourages that the Corps investigate technology and opportunities to provide fish passage at the above listed Corps dams. In addition, the State Legislature, with the passage of House Joint Memorial 5, has requested the U. S. Congress to direct and fund the Corps to study and install bypass facilities at those dams. The State of Oregon, through the Oregon Department of Fish and Wildlife, will be the study sponsor. They are aware of the cost sharing responsibilities contained in the Water Resources Development Act of 1986.

Fiscal Year 1996 funds are being used to continue the reconnaissance phase. Fiscal Year 1997 funds will be used to complete reconnaissance phase.

The District Engineer's reconnaissance report and the reconnaissance phase is scheduled for completion in February 1997 and September 1997, respectively.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
2c. Special Studies, Oregon (Cont'd)					
Walla Walla River Watershed	304,000	0	74,000	230,000	0

The Walla Walla River is a tributary of the Columbia River. It is located in southeastern Washington and northeastern Oregon in Walla Walla and Umatilla Counties. Much local interest has been focused on this river including private irrigated agriculture, grazing and logging interests, local irrigation and soil conservation Districts, planning commissions from both counties, Washington and Oregon Departments of Fish and Wildlife, the Confederated Tribes of the Umatilla Indian Reservation, U.S. Fish and Wildlife Service, and USDA Natural Resource Conservation Service. A commission of private citizens has recently been appointed to provide input regarding concerns and interests listed above. The Corps of Engineers Walla Walla District has attended planning meetings of this loose association of interests to help define the needs and opportunities within the watershed. The mouth of the Walla Walla River provides valuable wetland habitat for a wide variety of waterfowl, wading birds, shorebirds, and most recently, the first recorded nesting white pelicans in Washington. Of primary concern in the basin is water supply and quality for municipal and industrial needs, irrigated agriculture, and perhaps, most importantly, sustaining and restoring anadromous fisheries. The basin presently supports a harvestable steelhead fishery and once supported chinook and coho salmon. Devising ways to enhance spawning habitat and thus increase natural production of salmonids would prove extremely beneficial to the region. The city of Walla Walla presently derives its water supply from a protected watershed within the basin and there is already concern regarding over-allocation of surface water and depletion of ground-water supplies. Sections of the Walla Walla River and Mill Creek actually dry-up during the irrigation season. Walla Walla is also continually attracting new businesses and light industry (from agricultural product processing to high-tech R&D) some of which also create additional water needs. Especially in the arid valley, riparian vegetation is an extremely critical and valuable habitat element, both for its wildlife value and in maintaining the integrity of aquatic habitats by minimizing siltation and providing shade to keep water temperature low. In fact, western riparian zones in arid environments are considered valuable wetland types and the species and communities within them, i.e., cottonwood bottoms, have disappeared at an alarming rate. The Corps would integrate protection and restoration of riparian wetlands through bio-engineered remediation techniques. Other methods to be evaluated include wetland restoration, grassed waterways, retention structures, fish passage structures, riparian corridor restoration, and other environmental restoration associated with ensuring reasonable development within the watershed. The Corps currently has an active permitting program in the watershed. The watershed study would provide a basis on which the Corps would issue

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2a. Special Studies, Oregon, Walla Walla River Watershed (Cont'd)

general permits to focus development in low value wetlands and require restoration of degraded wetlands as mitigation for the permitted activities. Environmental restoration of the riparian zones would also prove their worth in flood damage reduction, water retention capabilities, and thus a prolonged seasonal streamflow. Watershed multiobjective natural resource management outputs associated with this project include urban and agricultural flood damage reduction at various locations in the proposed study area, fish and wildlife (environmental enhancement), riparian and wetland restoration, water quality, water supply, erosion control, low flow augmentation, and recreation. This study is authorized by Resolution adopted by the Senate Committee on Public Works adopted 27 July 1962.

Fiscal year 1996 funds are being used to initiate the reconnaissance study at full Federal expense. Fiscal Year 1997 funds will be used to complete reconnaissance phase. The reconnaissance study is scheduled for completion in June 1997, which is 12 months after initiating the study. The schedule for completion date of the feasibility study is being determined.

WASHINGTON

Chief Joseph Pool Raise	1,727,000	452,000	137,000	300,000	838,000

The project is located on the Columbia River in North Central Washington State. The study will investigate a pool raise at an existing hydroelectric dam for the purpose of generating additional electrical energy. The Colville Confederated Tribes are the sponsors of the study. The Colville Indian Reservation borders to the north of the project. Since Chief Joseph dam is an existing Federal project, the power would be marketed by the Bonneville Power Administration. The proposed study will concentrate on determining the optimum pool raise for power production and appropriate compensation for the project sponsor. Reconnaissance studies indicate a significant potential for additional generation without significant environmental impacts or impacts to the generation capacity of Grand Coulee Dam (next project upstream). The feasibility cost sharing agreement was signed on 18 August 1994.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2a. Special Studies, Washington, Chief Joseph Pool Raise (Cont'd)

Fiscal Year 1996 funds and requested Fiscal Year 1997 funds will be used to continue the feasibility study. The estimated cost of the feasibility phase is $2,758,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services.

A summary of study cost sharing is as follows:

Total Estimated Study Cost	$3,106,000
Reconnaissance Phase (Federal)	348,000
Feasibility Phase (Federal)	1,379,000
Feasibility Phase (non-Federal)	1,379,000

The reconnaissance phase was completed in August 1994. The schedule for completion date of the feasibility study is being determined.

Duwamish/Green River	950,000	0	286,000	150,000	514,000

The Duwamish Rivers originate in the Cascade Mountains about 60 miles southeast of Seattle, Washington. The total drainage area is 438 square miles. The Green River flows through King County west and north to the historic mouth of the Black River, forming the Duwamish River. The Duwamish River empties into Elliott Bay in Puget Sound 11 miles downstream. Howard A. Hanson Dam, located at R.M. 64.5 on the Green River, provides flood control to the lower Green River Basin. There is a Federal Navigation channel and sediment catch basin in the lower Duwamish (R.M. 6.4). Historically a significant amount of wetlands and fish and wildlife habitat in the basin have been degraded or destroyed through a number of actions including fill from a federally constructed and maintained navigation project. Over 98 percent of the original estuary wetlands have been lost. Associated loss of functions should also be noted. Critical areas of juvenile refuge, feeding and osmoregulation are limited in this watershed. Low summer flows and high temperatures are also minimizing the effectiveness of what limited habitat remains. This degradation has caused a significant reduction in the number of fish and wildlife being produced or residing in the basin. What once was a

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2c. Special Studies, Washington, Duwamish/Green River (Cont'd)

natural fishery that supported millions of chum, chinook, pink salmon and steelhead is in jeopardy. These runs have the potential to be listed under the Endangered Species Act. The degradation of this habitat along with other rivers in the area are partially responsible for a significant reduction in the anadromous fishery resources in the Puget Sound area. A comprehensive plan for corrective measures is required to restore fish and wildlife habitat. The goal of the proposed resource project would be to improve the habitat of the Green/Duwamish Rivers to try and restore the fishery to its historic numbers. The Green/Duwamish Basin also lies on the North American Flyway and the restoration of migratory bird habitat in this basin has been identified under the Pacific Coast Joint Venture Strategic Plan. King County has expressed interest in sponsoring this study and understands the cost sharing requirements. The current state of the anadromous fishery in the Green/Duwamish Basin and in Puget Sound makes it essential to work toward habitat restoration in this and other Puget Sound basins as soon as possible. The Green River basin is included in President Clinton's option nine of the Forest Management Plan and is in keeping with the Administration's policy of habitat restoration. This proposal offers a unique opportunity of total watershed planning and restoration. The potential to bridge restoration efforts in the upper watershed under the Forest Ecosystem Management Assessment Team (FEMAT) with the lower watershed critical estuary should not be overlooked. This restoration effort offers a tremendous opportunity to establish partnerships with other Federal, state and local agencies. Additional habitat restoration partnering opportunities could occur with integration with the Natural Resource Damage Assessment program ongoing in the lower Duwamish. Over ten million dollars have been targeted for restoration of aquatic habitat. This would also increase funding opportunities and further the intent of the Endangered Species Act and Migratory Bird treaty.

Fiscal Year 1996 funds are being used to initiate a reconnaissance study of the Duwamish/Green River basin. The study will focus on preliminary investigation of alternatives for habitat restoration and costs and benefits determined. Fiscal Year 1997 funds will be used to complete reconnaissance phase, and if the reconnaissance report is certified to be in accord with policy, to initiate the feasibility study. The estimated cost of the feasibility phase is $1,110,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2c. Special Studies, Washington, Duwamish/Green River (Cont'd)

A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,500,000
Reconnaissance Phase (Federal)	400,000
Feasibility Phase (Federal)	550,000
Feasibility Phase (non-Federal)	550,000

The reconnaissance report is scheduled for completion in November 1996, which is 12 months after the initiation of the study. The reconnaissance phase is scheduled for completion in May 1997. The schedule for completion date of the feasibility study is being determined.

Stillaguamish River	400,000	0	69,000	331,000	0

The Stillaguamish River basin is located in southwestern Skagit County and northwestern Snohomish County and the Stilliguamish River flows into Puget Sound about 20 miles northeast of Everett. Approximately one-third of the upper basin lies in Skagit County and the remainder in Snohomish County. The Stillaguamish basin is one of the smaller valley systems in the Puget Sound area with a drainage area of 685 square miles. Its principal tributaries are the North Fork Stillaguamish and the South Fork Stillaguamish. Historically, a significant amount of wetlands and fish and wildlife habitat in the Stillaguamish River basin and estuary have been degraded or destroyed through a number of actions including impacts from a federally constructed revetment and river straightening project that was constructed in the lower part of the basin. These habitats are critical in providing feeding and refuge areas for juvenile salmonids, as well as providing a needed water quality component for minimizing upstream impacts associated with forest practices. The loss of these types of habitats may be one of the limiting factors responsible for a significant reduction in the anadromous fishery resources in the Puget Sound area. This degradation has caused a significant reduction in the number of fish and wildlife being produced or residing in the basin. The current fish runs on the Stillaguamish River include several wild runs of coho, chinook, and pink salmon and winter and summer runs of steelhead. Several of these species have been proposed as threatened under the Endangered Species Act. The summer and fall chinook and the coho runs on the

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2c. Special Studies, Washington, Stillaguamish River (Cont'd)

Stillaguamish are significantly depressed and fishing on these stocks has been eliminated because escapement goals have not been reached. The historic runs estimated to once number in the millions have now been closed to commercial fishing. The reconnaissance study would evaluate measures to restore the amount and function of intertidal aquatic. The Stillaguamish River Estuary has been designated as a target area for the restoration of migratory bird habitat in this basin in the Strategic Plan of the Pacific Coast Venture, Washington Steering Committee of the North American Waterfowl Management Plan. Several parcels near the mouth of the river have been targeted for acquisition by the Pacific Coast Venture. Snohomish County has expressed interest in sponsoring this study and has indicated an intent to

share equally the cost of the feasibility study phase that may follow the reconnaissance study. The current threatened status of the anadromous fishery in the Stillaguamish basin and in Puget Sound make it essential to work toward habitat restoration in this and other Puget Sound basins as soon as possible. The Stillaguamish basin is included in President Clinton's option nine of the Forest Management Plan and this proposal is in keeping with the Administration's policy of habitat restoration, offering a unique opportunity for total watershed planning and restoration. The potential to bridge restoration efforts in the upper watershed under the Forest Ecosystem Management Assessment Team (FEMAT) with the lower watershead critical estuary should not be overlooked. This restoration effort offers a tremendous opportunity to establish partnerships with other Federal, state, and local agencies. It would also increase funding opportunities and further the intent of the Endangered Species Act and Migratory Bird treaty.

Fiscal Year 1996 funds are being used to initiate reconnaissance phase. Fiscal Year 1997 funds will be used to complete reconnaissance phase of the Stillaguamish basin. The study will focus on preliminary investigation of alternative measures for fish and wildlife habitat restoration. The reconnaissance report is scheduled for completion in February 1997, which is 12 months after initiation of the study. The reconnaissance phase is scheduled for completion in September 1997.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
2c. Special Studies (Cont'd)					
WYOMING					
Jackson Hole Restoration	1,482,000	782,000	150,000	200,000	350,000

Jackson Hole is an area within the floodplain of the Snake River, located in Teton County near the towns of Moose and Jackson, Wyoming. The area is very scenic and popular for tourism.

In March 1954, Congress authorized comprehensive studies of flooding and other water resource problems throughout the Snake River Basin in Idaho and Wyoming. Subsequent studies, conducted under the Upper Snake River and Tributaries study authority, led to construction of 23 miles of continuous, revetted levees along the Snake River. The Jackson Hole project, a system of Federally-constructed levees, begins about 4 miles below the Snake River bridge near Moose and extends downstream to 4 miles below the Jackson-Wilson bridge and was completed in 1964. Many non-Federal levees were constructed in the Jackson Hole area in the 1960's as well. The resulting Federal/non-Federal levee system reduced 2c. flood damages to improvements and lands within Jackson Hole. However, the levees significantly reduced the floodplain, hydrologically cutting off river flows and sediments to adjacent wetlands and other habitat supporting important fish and wildlife resources in Jackson Hole area.

In 1961, the Corps initiated the Snake River in Wyoming Interim flood control study under the broad authority of the 1954 Congressional study resolution. The study purpose was to determine if further Federal improvements for flood control are needed in the Jackson Hole area. Several subsequent investigations have been conducted, but due to lack of economic justification, and subsequent legislation directing the Corps to assume maintenance of all levees in the Jackson Hole area, the interim study has never been completed and no additional Federal levee projects have been constructed. The Water Resources Development Act of 1986, Section 840, directed the Corps of Engineers to assume responsibility for maintenance and operation of levees in the Jackson Hole area. This was accomplished in September 1990, following completion of an Environmental Impact Study and Record of Decision.

The U.S. Fish and Wildlife Service in their Coordination Act Report, dated April 1990, identified over 500 acres of gravel stream bed, 700 acres of riparian cottonwood habitat and 800 acres of riparian shrub-willow habitat that has been

APPROPRIATION TITLE: General Investigations, Fiscal Year 1997

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2c. Special Studies, Wyoming, Jackson Hole Restoration (Cont'd)

lost since initial construction of the levees in 1957. Overall, this habitat loss will continue to result in a major reduction in the diversity of the Upper Snake River floodplain ecosystem. In June 1990, the Senate Committee on Environment and Public Works authorized the Corps to study fish and wildlife impacts resulting from the Jackson Hole project.

The current Jackson Hole, Wyoming study is responding to June 1990 Congressional directive, as well as the need to complete earlier flood control investigations conducted under the Snake River in Wyoming Interim Study. In 1993, Teton County and other local interests requested the Corps combine all ongoing General Investigations studies in the Jackson Hole area into a single, comprehensive study, and are highly supportive of this action. This study has determined the extent of, impacts to fish and wildlife resources resulting from the existing Federal levee project and identified opportunities for habitat restoration, as well as the need for additional flood control improvements in the Jackson Hole area. The Sponsor has expressed interest in cost-sharing the proposal and an agreement could be reached in April 1996.

A Project Study Plan for the Feasibility Cost Share Agreement was developed in January 1995 for a proposed $4 million study. The local sponsor was unable to finance the study, and asked the Corps to re-scope the study to a $800,000-1,000,000, 4-year effort. In December 1995, the Corps released a revised $1.4 million proposal. The preliminary estimated cost of the feasibility phase is $1,400,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services.

A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,182,000
Reconnaissance Phase (Federal)	782,000
Feasibility Phase (Federal)	700,000
Feasibility Phase (non-Federal)	700,000

The reconnaissance phase is scheduled for completion in April 1996. The schedule for completion date of the feasibility study is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
2d. Comprehensive Study					
OREGON					
Willamette River Basin Review	2,225,000	793,000	152,000	400,000	880,000

Willamette River Basin, containing an area of approximately 12,000 square miles, is located in northwestern Oregon. As the most populated area in Oregon, the basin is highly developed. Many miles of levees and channel improvements have been constructed for flood protection. During the last 40 years, 13 Corps' reservoirs have been constructed to control floods, generate power, and provide water for navigation and irrigation. Present problems include flood damages, which are still considerable; fish and wildlife conservation; municipal and industrial water supply; and development of additional recreation opportunities. In addition, projected irrigation development in the basin has not materialized at the rate previously envisioned, leaving considerable uncontracted water available for other vendible purposes. Local interests seek a re-examination of Corps' reservoirs with a view toward authorizing additional project purposes and modifying reservoir operation. The State of Oregon has expressed strong support for the study because of its desire to implement a new Comprehensive Management Plan for the basin. The State has developed a plan for cost sharing the feasibility phase. The feasibility phase of the study will determine if modifying the operation and storage allocation of the existing Corps' system of 13 reservoir projects would better serve current anticipated future water resource needs.

Fiscal Year 1996 funds are being used to complete the reconnaissance study phase and to initiate the feasibility study. Fiscal Year 1997 funds will also be used to continue the feasibility study. The preliminary estimated cost of the feasibility phase is $2,800,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2d. Comprehensive Study, Oregon, Willamette River Basin Review (Cont'd)

A summary of study cost sharing is as follows:

Total Estimated Study Cost	$3,625,000
Reconnaissance Phase (Federal)	825,000
Feasibility Phase (Federal)	1,400,000
Feasibility Phase (Non-Federal)	1,400,000

The reconnaissance phase is scheduled for completion in May 1996. The schedule for completion date of the feasibility study is being determined.

2e. Project Review Studies:

WASHINGTON

Lake Washington Ship Canal	770,000	279,000	0	140,000	351,000

The Lake Washington Ship Canal Project and Hiram M. Chittenden Locks, Seattle, WA, is an 8-mile canal with a double lock and fixed dam with gated spillways between Lake Washington and the Puget Sound. Freshwater usage at the Locks amounts to an annual average of 75,000 acre-feet of water for lockages and 210,000 acre-feet for controlling saltwater intrusion. Freshwater in Lake Washington is primarily supplied by the Cedar River which is also the main source of Seattle's water supply. An opportunity exists for additional water supply withdrawal from the Cedar River if water usage at the Locks can be reduced. By letter dated 4 Jun 90, the City of Seattle Water Department requested that the Corps of Engineers undertake a reconnaissance study of lock modifications to conserve water to allow for increased upstream water diversions by the City. The City has indicated a willingness to cost share subsequent feasibility and implementation phases.

The draft reconnaissance report was submitted in February 1992. The reconnaissance study was suspended in 1992 and placed on in-active status. The study is pending completion of ongoing Cedar River instream flow negotiations between the City of Seattle, State of Washington, and Muckleshoot Indian Tribe. With completion of this negotiations, additional water

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2e. Project Review Studies, Washington, Lake Washington Ship Canal (Cont'd)

withdrawals by the City will be more certain.

Fiscal Year 1997 funds will be used to complete the reconnaissance phase and if the reconnaissance report is certified to be in accordance with policy, continue into the feasibility phase. The preliminary estimated cost of the feasibility phase is $840,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services.

A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,190,000
Reconnaissance Phase (Federal)	350,000
Feasibility Phase (Federal)	420,000
Feasibility Phase (non-Federal)	420,000

The reconnaissance phase is scheduled for completion in March 1997. The schedule for completion date of the feasibility study is being determined.

Howard Hanson Dam, Additional Storage	2,225,000	1,475,000	314,000	320,000	116,000

Howard A. Hanson Dam is an existing Federal earthfill and concrete dam which provides winter flood control and summer low-flow enhancement. The project was completed by the Corps of Engineers in 1962 and is located on the Green River about 35 miles southeast of Seattle and about 35 miles due east of Tacoma in King County, Washington. Earlier studies have indicated that there is an opportunity to significantly increase summer water storage at the reservoir to provide needed municipal water supply, restore degraded Green River system functions and structures, and to a lesser degree improve downstream recreation. The severe 1987 drought and the recent 1992 drought in the Pacific Northwest, has intensified the need for additional sources of water supply in the rapidly growing Seattle-Tacoma urban area, and Howard Hanson Dam and Reservoir could provide a least-cost source of water to satisfy this demand. Changes to the dam and reservoir which are being studied

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2e. Project Review Studies, Howard Hanson Dam, Additional Storage (Cont'd)

include: The main project features are water supply storage, low-flow augmentation storage, fish passage, and fish and wildlife habitat improvements.

Fiscal Year 1996 and Fiscal Year 1997 funds will be used to continue the feasibility study. The estimated cost of the feasibility phase is $4.2 million, which is to be cost shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services.

A summary of study cost sharing is as follows:

Total Estimated Study Cost	$4,325,000
Reconnaissance Phase (Federal)	125,000
Feasibility Phase (Federal)	2,100,000
Feasibility Phase (non-Federal)	2,100,000

The schedule for completion of the feasibility study is being determined.

3. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - NEW - None

4. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - CONTINUING

4a. Navigation:

ALASKA

Chignik Harbor	237,000	0	176,000	61,000	0

Chignik is located approximately 450 air miles southwest of Anchorage, Alaska on the south side of the Alaska Peninsula. One of Alaska's largest salmon fishing fleets converges on the Chignik area each year, where there is no protected harbor.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

4a. Navigation, Alaska, Chignik Harbor (Cont'd)

Major storm damage occurs to commercial vessels that must currently raft at an existing fish processing dock. The nearest harbor to Chignik is about 140 miles away and many local commercial fishermen must travel to Seattle to find safe winter moorage for their vessels. Detailed designs for a harbor at Chignik have been prepared under the Section 107 navigation authority of the 1960 River and Harbor Act. The costs of harbor construction are currently estimated at $10.7 million. The statutory Federal funding limit for a Section 107 project is $4 million, including costs of planning and design. Both the city of Chignik and the Alaska Department of Transportation and Public Facilities (ADOT/PF) believe the local cost share of $7.7 million for Section 107 project is beyond their ability to fund. If the project were authorized by Congress, in a Water Resources Development Act, cost sharing would be in accordance with the provisions of the Water Resources Development Act of 1986. Accordingly, the local cost share would be 20 percent of the general navigation feature costs, or about $1 million. This combined with the moorage system cost would yield a local share of $6.2 million which is achievable with State support. The estimated project benefits of $1.7 million annually are all for commercial navigation and produce a benefit-cost ratio of 1.9 based on the latest economic analysis dated November 1995. Therefore, both the city and ADOT/PF request continuation of Preconstruction Engineering and Design (PED) for the project.

Fiscal Year 1996 funds are being used to complete feasibility study and initiate PED. Feasibility report is scheduled for completion in March 1996. Fiscal Year 1997 funds will be used to complete PED, which is scheduled for completion in February 1997.

Cook Inlet	150,000	0	0	150,000	0

Southcentral Alaska, which contains 2/3 of the States' population, is the hub of economic activity. Cook Inlet serves as the vital transportation corridor for most of Alaska's bulk cargo and has the potential to enable export of processed iron ore brickets, coal, and other natural resources on a world class scale. Interims under Southcentral Deep Draft Navigation have been completed for Kodiak and Anchorage. However, the Cook Inlet area has become increasingly active as a focal point for navigation planning and development. The three boroughs bordering the inlet have shown strong interest in port development and in planning for a Cook Inlet marine highway system. The feasibility study is expected to result in navigation improvements on Knik Arm Shoal, 6 miles from Anchorage. Anchorage and the State of Alaska have expressed 4a.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Navigation, Alaska, Cook Inlet (Cont'd)					

willingness to meet non-Federal cost sharing responsibilities based on the Water Resources Development Act of 1986 and are sharing the cost of the feasibility study. Technical evaluations include analysis of currents and shoaling that result from one of the highest tidal energy environments in the world. The benefit to cost ratio for potential channel improvements is estimated to be 3.3 to 1. The funds allocation shown is the 75 percent Federal share of the total PED cost of $200,000. The local sponsor will provide the remaining 25 percent share. The project is not authorized for construction.

Fiscal Year 1997 funds will be used to initiate and complete PED, which is scheduled for completion in September 1997.

St. Paul Harbor Channel	881,000	280,000	436,000	165,000	0

St. Paul is the northernmost of the Pribilof Islands, located in the southeastern Bering Sea approximately 800 air miles west southwest of Anchorage. The Pribilof Islands are located in the middle of the extensive Bering Sea fisheries for groundfish and crab. A federally authorized harbor was constructed at St. Paul in 1989 by the city of St. Paul under authority Section 204 (e) of the 1986 WRDA, in which the city was reimbursed for the Federal share after construction was completed. The project consists of two breakwaters and a dredged maneuvering channel. It provides shelter for Bering Sea commercial fishing vessels seeking harbor services or delivering their catches at St. Paul Island. Vessels delivering consumer goods and industrial supplies also use cargo transfer facilities protected by the breakwaters. The waves from large winter storms on the Bering Sea overtop the main breakwater more frequently than expected which limits cargo transfer and fish processing potential of the harbor. Deeper draft small cargo vessels want to use the harbor but it needs to be deepened and the maneuvering area enlarged. The waves overtopping the breakwater also need to be significantly reduced. Harbor use has been much greater than anticipated due to several processing plants moving in to receive the vessels' catches. Because of the increased traffic and the need for deeper draft vessels, the city of St. Paul has requested that the Federal entrance channel be enlarged. The city of St. Paul is the local sponsor and understands the cost-sharing needed for the feasibility study and construction as required by the 1986 Water Resources Development Act.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase and initiate the feasibility study. Engineering, economic and environmental evaluations will include extending the Federal entrance channel approximately 500 feet within

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

4a. Navigation, Alaska, St. Paul Harbor (Cont'd)

the harbor interior. Fiscal year 1997 funds will be used to complete the feasibility study and initiate and complete preconstruction engineering and design. The cost of the feasibility phase is $936,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. The estimated cost of PED is $200,000, which is to be cos-shared 75% Federal and 25% non-Federal.

A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,199,000
Reconnaissance Phase (Federal)	263,000
Feasibility Phase (Federal)	468,000
Feasibility Phase (Non-Federal)	468,000

The reconnaissance phase was completed in October 1995. The feasibility study is scheduled for completion in December 1996. PED is scheduled for completion in September 1997.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
4b. Flood Damage Prevention					
OREGON					
Willamette River Temperature Control	2,750,000	232,000	1,000,000	1,000,000	518,000

The Willamette River Basin is located in northwestern Oregon and contains an area of approximately 12,000 square miles. During the last 40 years, 13 Corps reservoirs have been constructed in the basin to control floods, generate power and provide water for navigation, irrigation, improving water quality, recreation and fish and wildlife. State and Federal resource agencies including the Northwest Power Planning Council have been seeking modification of water temperatures downstream from two reservoirs, Blue River and Cougar Lakes, to achieve more beneficial temperatures for anadromous fish life under present flow conditions in the McKenzie River subbasin. Facilities are intended to restore fish and wildlife habitat by improving downstream water temperatures that may have been degraded by the existing Corps projects at Blue River and Cougar Lakes. Restoring pre-project temperatures will improve survival rates and increase populations of three important native fish species: the wildstock of Willamette spring chinook salmon, the bull trout (a critical species in Oregon), and the rainbow trout. These fisheries once provided important recreational and commercial benefits to the region. Justification for the project is based on non-monetary fishery and other biological benefits, therefore, a benefit-to-cost ratio has not been prepared. The feasibility study was completed in April 1995. The current estimated cost to install multi-level intake towers at the two projects is $45.2 million, which is 100% federally funded. The estimated Preconstruction Engineering and Design (PED) costs of $2,750,000 is for Cougar Lake only. A budget request for Blue River Lake design (PED) will be submitted during the construction phase for Cougar Lake. The project is not authorized for construction.

Fiscal Year 1996 funds are being used to continue Preconstruction Engineering and Design of temperature control modifications at Cougar Lake. Fiscal Year 1997 funds will be used to continue Preconstruction Engineering and Design. The schedule for completion of the Preconstruction Engineering and Design for Cougar Lake is being determined.

APPROPRIATION TITLE: Construction, General - Navigation - Channels and Harbors

PROJECT: Kake Harbor, Alaska (New Start)

LOCATION: Kake is located in southeast Alaska on the northwest shore of Kupreanof Island.

DESCRIPTION: The project consists of a new 1,300 foot rubblemound breakwater and relocating the existing 510-foot floating breakwater. The harbor would provide protected moorage for the existing 87 vessels as well as an additional 90 permanent mooring slips and 27 additional transient spaces.

AUTHORIZATION: 1968 River and Harbor Act (Public Law 90-483, 90th Congress)

REMAINING BENEFIT-REMAINING COST RATIO: 2.9 to 1.0 at 3-1/4 percent.

TOTAL BENEFIT-COST RATIO: The current benefit to cost ratio is 2.9 to 1.0 at 3-1/4 percent.

INITIAL BENEFIT-COST RATIO: 2.9 to 1.0 at 3-1/4 percent (FY 1997).

BASIS OF BENEFIT-COST RATIO: General Reevaluation Report of April 1995 at January 1995 price levels.

SUMMARIZED FINANCIAL DATA:

			STATUS (1 January 96)	Percent Complete	Completion Schedule
Estimated Appropriation Requirement (CofE)		$10,116,000			
Estimated Appropriation Requirement (U.S. Coast Guard)		8,000	Entire Project	0	Being Determined
Estimated Total Appropriation Requirement		10,124,000			
Future Non-Fed Reimbursement		1,124,000			
Estimated Federal Cost (Ultimate) (CofE)		9,000,000			
Estimated Non-Fed Cost		2,248,000			
Cash Contributions	$1,124,000				
Other	0				
Reimbursement	1,124,000				
Navigation	$2,248,000				
Total Estimated Project		$11,248,000			

Division: North Pacific District: Alaska Kake Harbor, Alaska

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUMULATED % OF EST. FED COST
Allocations to 30 September 1995	$ 1,018,000	
Conference Allowance for FY 1996	186,000	
Allocations for FY 1996	188,000 1/	
Allocations thru 1996	1,206,000	12
Allocations requested for FY 1997	4,000,000	51
Programmed Balance to Complete after FY 1997	4,910,000	100
Unprogrammed Balance to Complete after 1997	0	

PHYSICAL DATA	Main
Breakwater Length (ft)	1,300
Entrance Channel	
Width (ft)	150
Depth (ft)	-18
Mooring Area	
Total Area MLLW Depth	-18
Acres	16.6

1/ Reflects $48,000 assigned as savings and slippage and a reprogramming of $50,000 into the project.

JUSTIFICATION: The city of Kake is situated on the northwest shore of Kupreanof Island in Southeastern Alaska. It is an active and growing island port whose economy is heavily dependent on commercial fishing. The local fleet presently anchors in the ice free, but inadequately protected harbor at Portage Cove or ties up at the exposed city dock. At present boats are subject to overcrowding and hazardous mooring conditions between fishing periods. The anchorage is exposed to all storms from the southeast clockwise to the northwest. The violent southeast and northwest storms often damage and sometimes destroy boats by forcing them ashore or on the exposed rock reefs at low tides. The proposed project would provide a protected harbor at Portage Cove, which would produce benefits in the form of reduced boat damage, increased fish harvest, and a harbor of refuge. The average annual navigation benefits attributable to the project are currently estimated at $1,463,400.

FISCAL YEAR 1997: The requested amount of $4,000,000 will be applied as follows:

Complete Lands and Damages	$ 32,000
Initiate Breakwaters and Seawall	3,790,000
Continue Engineering and Design	10,000
Initiate Construction Management	168,000
Total	$ 4,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	$ 0	
Pay 10 percent of the costs allocated to deep draft navigation during construction.	$1,124,000	
Reimburse an additional 10 percent of the costs of general navigation features allocated to commercial navigation within a period of 30 years following completion of construction, as partially reduced by a credit allowed for the value of lands, easements, rights of way, relocations. and dredged or excavated material disposal areas provided for commercial navigation.	$1,124,000	
Total Non-Federal Costs	$2,248,000	

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction and reimburse its share of construction costs over a period not to exceed thirty years.

STATUS OF LOCAL COOPERATION: The City Council of Kake, Alaska, has agreed to meet all requirements of local cooperation. A Letter of Assurance was transmitted to the Corps of Engineers on 1 June 1995. The Project Cooperation Agreement will be signed in January 1997. The city has submitted a financing plan for their portion of the required funds.

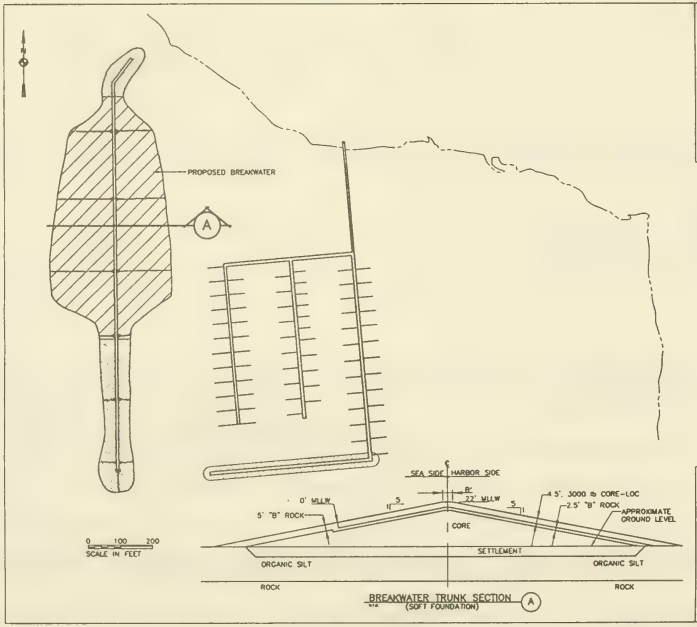
COMPARISON OF FEDERAL COST ESTIMATE: The current Federal (Corps of Engineers) Cost Estimate of $10,116,000 is the initial estimate presented to Congress for the Portage Cove site.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT AND COMPLIANCE WITH CLEAN WATER ACT:

a. The final supplemental environmental impact statement was submitted to EPA in March 1981.

b. The provisions of Section 404 of the Clean Water Act were met with the submission of the EIS including a Section 404 (b)(1) evaluation to Congress in July 1981.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1995. Portage Cove is the site recommended in the General Reevaluation Report (April 1995). The original project authorization was based on a site at Kake which was never built. Now, Portage Cove is more economical than the Kake site, and is favored by the city of Kake.



LEGEND

FY 95

FY 96

FY 97

AFTER 97

KAKE HARBOR
KAKE, ALASKA

ALASKA DISTRICT, CORPS OF ENGINEERS
ANCHORAGE, ALASKA

2 JANUARY 1996

18 MAR 1996

APPROPRIATION TITLE: Construction, General (Major Rehabilitation on Multiple-Purpose Power Projects)

PROJECT: The Dalles Powerhouse (Units 1-14), Washington and Oregon (Major Rehabilitation) (New)

LOCATION: On the Columbia River at the head of Bonneville Lake, 191.5 miles upstream from the mouth of the river and three miles east of The Dalles, Oregon.

DESCRIPTION: Rewind nine generators, replace the blades on twelve turbine units, refurbish the blades on two turbine units, and refurbish two powerhouse bridge cranes.

AUTHORIZATION: River and Harbor Flood Control Act of 17 May 1950, Public Law 516, 81st Congress, 2nd Session; Public Laws 78-534, 85-624, 98-396, and 92-500.

REMAINING BENEFIT - REMAINING COST RATIO: 4.34 to 1 at 7-3/4 percent

TOTAL BENEFIT - COST RATIO: 4.34 to 1 at 7-3/4 percent

INITIAL BENEFIT - COST RATIO: 4.34 to 1 at 7-3/4 percent

BASIS OF BENEFIT - COST RATIO: Benefits are from the Evaluation Report submitted 15 March 1995 at October 1995 price levels.

SUMMARIZED FINANCIAL DATA				STATUS (1 JAN 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Appropriation Requirement			$86,000,000			
Future Non-Federal Reimbursement			$86,000,000			
Estimated Federal Cost (Ultimate)			0	Entire Project	0	Being Determined
Estimated Non-Federal Cost			$86,000,000			
Reimbursements		$86,000,000				
Power	$86,000,000					
Total Estimated Project Cost			$86,000,000			

SUMMARIZED FINANCIAL DATA (Cont'd)

		Accum.% of Est Federal Cost
Allocations to 30 September 1995	$ 0	
Conference Allowance for FY 1996	0	
Allocation for FY 1996	0	
Allocations through FY 1996	0	0
Allocation Requested for FY 1997	3,000,000	3
Programmed Balance to Complete after FY 1997	83,000,000	
Unprogrammed Balance to Complete after FY 1997	0	

PHYSICAL DATA (EXISTING PROJECT)

Powerhouse (Units 1-14)
Units 1-14 capacity - 1,092 MW

JUSTIFICATION: The Dalles Powerhouse has been producing commercial power since 1957. It serves as an integral part of the Northwest Power Pool Transmission Grid and accounts for 6.5% of the total hydroelectric power generated by the Columbia River Projects. The Dalles Powerhouse itself is nearly one-half mile long with a total of 22 generating units. Fourteen units were installed during initial construction of the powerhouse (1952-1960); eight more units were added later (1969-1972). There are four additional small generating units at the powerhouse; two discharge fish attraction water and two generate power for use at the project. The project's generating capacity is 1,807 megawatts (MW). The Dalles provides hydroelectric power for both base load and peaking operations, but operates primarily in a peaking mode. The peaking operation results in an average of 180 start-stops per unit per year. On Units 1-14, the cumulative effects of age and start-stops are showing up as a pattern of generator failures that indicates declining reliability. In the first 17 years of service there were no generator failures. In the subsequent 15 years, there were seven generator failures, two of which required rewinding. In the past six years, there have been six more generator failures. One unit was rewound, two others are still out of service awaiting rewinds, and one repaired unit was derated. Additionally, turbine efficiency on units 1-14 has declined an average of two percent. This reduces the total amount of energy The Dalles Project can produce. Deterioration in the turbines also causes significantly increased mortality in juvenile fish passing through the turbines. Prior to construction, fish friendly turbines will be investigated and evaluated for installation at this project. Model tests of fish friendly turbines at other projects indicate that there is less mechanical injury to fish and increase in turbine efficiency. The average annual benefits attributable to this project are currently estimated at $15,740,000.

FISCAL YEAR 1997: The requested amount of $3,000,000 will be applied as follows:

Initiate Powerhouse Rehabilitation	$2,595,000
Engineering and Design	315,000
Construction Management	90,000
Total	$3,000,000

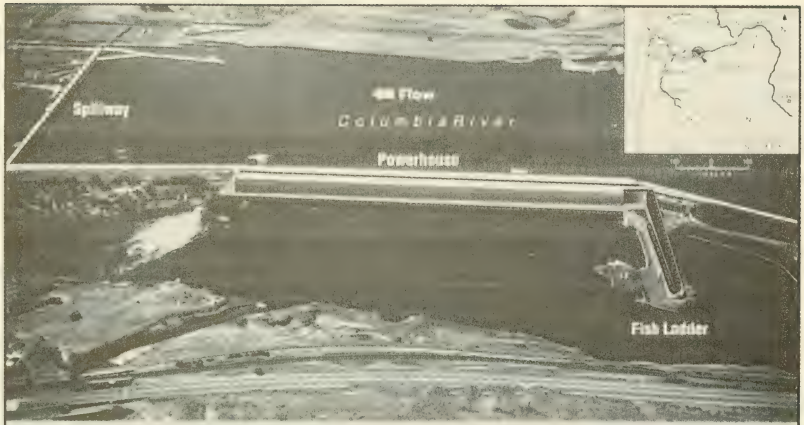
STATUS OF LOCAL COOPERATION: None required for major rehabilitation.

NON-FEDERAL COST: Costs allocated to power, presently estimated at $86,000,000, are reimbursable. This project is a part of the Federal Columbia River power system. Bonneville Power Administration (BPA), the federal marketing agency, establishes system rate levels adequate to recover all capital investment cost for generating projects (including Corps generating projects) within 50-year period and to repay annual OM&R and interest expenses. BPA submits annual financial statements to Congress, as required by law, on repayment and periodically recommends rate adjustment as required for meeting repayment obligations.

COMPARISON OF FEDERAL COST ESTIMATE: The current federal cost estimate of $86,000,000 is the initial estimate presented to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment (EA) and a Finding of No Significant Impact (FONSI) was finalized on 13 March 1995 for The Dalles Powerhouse (Units 1-14) Major Rehabilitation work.

OTHER INFORMATION: Initial construction of the powerhouse was completed in 1960.



Legend

Schedule

Columbia River Basin
The Dalles Powerhouse
(MAJOR REHAB)
Washington and Oregon

US Army Engineer District Portland
North Pacific Division

Prepared 1 January 1996

APPROPRIATION TITLE: Construction, General - Deep Draft Navigation - Channels and Harbors

PROJECT: Coos Bay, Oregon (Continuing)

LOCATION: Coos Bay is located in Coos County on the southern Oregon coast about 200 miles south of the mouth of the Columbia River and 445 miles north of San Francisco Bay.

DESCRIPTION: The project consists of deepening the existing channel 2 feet from the entrance to mile 15 and expanding one turning basin. The recommended depth at the entrance would transition from 47 feet deep to 37 feet deep at Guano Rock (River Mile 1). The inner channel would be 37 feet deep to mile 15. Channel widths would not change.

AUTHORIZATION: FY 1996 Energy and Water Development Act, Public Law 104-46, dated November 13, 1995.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost is 2.6 to 1.0 at interest rate of 7 5/8%.

TOTAL BENEFIT-COST RATIO: The total benefit-cost ratio is 1.6 to 1.0 at 7 5/8%.

BASIS OF BENEFIT-COST RATIO: Benefits are based on the final feasibility report, dated January 1994 and are at October 1993 price levels.

SUMMARIZED FINANCIAL DATA:

Estimated Appropriation Requirement (CoE)		8,352,000
Future Non-Fed Reimbursement		767,000 1/
Estimated Federal Cost (Ultimate) (CoE)		7,585,000
Estimated Non-Fed Cost		4,267,000
Cash Contributions	$2,917,000 1/	
Other	183,000	
Reimbursement (Navigation)	1,167,000 1/	
Total Estimated Project		$11,852,000

1/ During construction, local sponsor plans to provide $400,000 up-front cash funds in addition to the required $2,917,000 cash contribution. The remaining future reimbursement requirement of $767,000 ($1,167,000 - $400,000) will be paid over a period not to exceed thirty years.

STATUS (1 January 96)	Percent Complete	Completion Schedule
Entire Project	7	May 1997 2/

2/ Completion date excludes post construction monitoring.

971

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUMULATED % OF EST. FED COST
Allocations to 30 September 1995	$ 632,000	
Conference Allowance for FY 1996	0 3/	
Allocations for FY 1996	2,675,000 4/	
Allocations thru 1996	3,307,000	40
Allocations requested for FY 1997	4,900,000	98
Programmed Balance to Complete after FY 1997	145,000 6/	
Unprogrammed Balance to Complete after 1997	0	

PHYSICAL DATA

Channels	
Entrance 5/	
Depth	47 feet
Width	700 feet
River Mile 1 to 9	
Depth	37 feet
Width	300 feet
River Mile 9 to 15	
Depth	37 feet
Width	400 feet
Turning Basin:	
Depth	37 feet
Width	900 feet
Length	1,000 feet

3/ The FY 1996 Energy and Water Development Act, Public Law 104-46 did not provide specific appropriations for this project, but authorized the Secretary of the Army, acting through the Chief of Engineers to undertake construction of this project, in accordance with the Report of the Chief of Engineers, dated June 30, 1994, using funds appropriated herein.
4/ Reflects $25,000 of GI PED funds reprogrammed to the project and $2,650,000 of Construction General funds reprogrammed to the project.
5/ Reduces gradually to 37 feet and 300 feet wide at river mile 1.
6/ Post construction monitoring.

JUSTIFICATION: Coos Bay deep-draft commerce is primarily forest-industry related and has averaged over five million tons per year since 1976. Recently, facilities have been constructed at the port to receive nickel ore imports from New Caledonia, a French island in the South Pacific. As the only nickel smelter in the United States, this import has national significance. Nickel imports are expected to increase commerce and the need for deep-draft improvements at Coos Bay. Also, copper imports are a potential future commodity. The existing interior channel is 35 feet deep, varies in width from 300 to 400 feet, and is inadequate to accommodate world fleet vessels calling on the port. Consequently, vessels experience costly delays awaiting favorable tides or are light loaded. Because of the rough entrance conditions and lack of suitable in-bay anchorage, vessels must wait at sea or port for favorable conditions before entering or leaving the project area. Total average annual benefits are estimated to be $1,860,000.

Division: North Pacific District: Portland Coos Bay, Oregon

FISCAL YEAR 1997: The requested amount of $4,900,000 will be applied as follows:

Complete Construction of the Channel	$ 4,600,000
Engineering and Design	50,000
Construction Management	250,000
Total	$ 4,900,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 0	
Pay 25.0 percent of the costs allocated to deep draft navigating during construction.	$2,917,000	
Dredge berth areas	$ 183,000	
Reimburse an additional 10 percent of the costs allocated to general navigation facilities within a period of 30 years following completion of construction (which is partially offset by a credit allowed for the value of lands, easements, rights of way, relocations, and dredged material disposal areas).	$1,167,000	
Total Non-Federal Costs	$4,267,000	

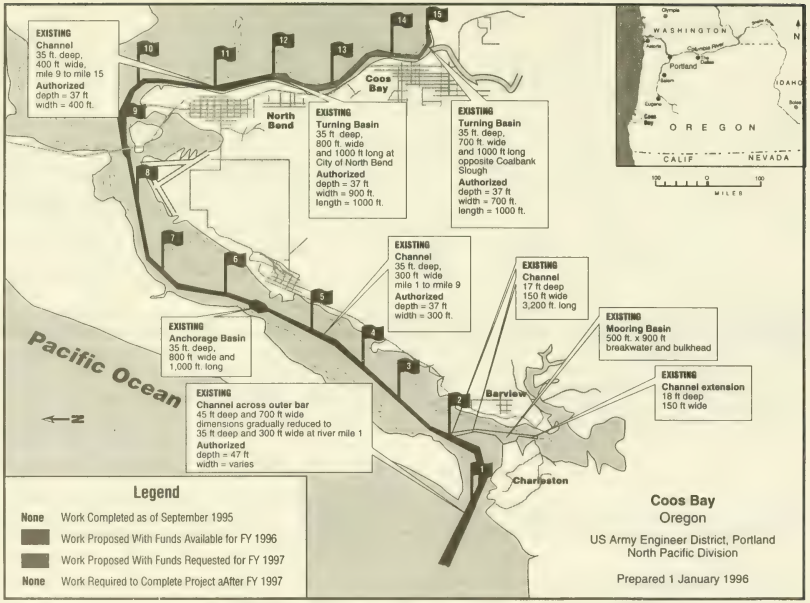
The non-Federal sponsor has also agreed to make all required cash contribution payments concurrently with project construction and reimburse their remaining share of construction costs over a period not to exceed thirty years.

STATUS OF LOCAL COOPERATION: The International Port of Coos Bay has agreed to meet all requirements of local cooperation. A Letter of Intent was transmitted to the Corps of Engineers on 27 January 1994. The Project Cooperation Agreement is scheduled to be signed in April 1996. The International Port of Coos Bay, will reimburse the Corps of Engineers $1,167,000 in the thirty year period following completion of construction, as required by provision in the Water Resources Development Act of 1986. The port has submitted a financing plan for the required funds.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal (Corps of Engineers) Cost Estimate of $8,352,000 is the initial estimate presented to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed by EPA and published in the Federal Register on 18 March 1994.

OTHER INFORMATION: Funds to initiate Preconstruction Engineering and Design were appropriated in FY 1994 and funds to initiate construction were appropriated in FY 1996.



18 MAR 1996

47

975

APPROPRIATION TITLE: Construction, General - Bank Stabilization

PROJECT: Bethel Bank Stabilization, Alaska (Continuing)

LOCATION: Bethel is located in southwestern Alaska on the north bank of the Kuskokwim river, approximately 400 miles west of Anchorage.

DESCRIPTION: The project consists of rock riprap toe protection to be installed on the unprotected riverbank and at locations where existing State of Alaska constructed bulkheads are threatened by erosion. This includes 3,500 feet of unprotected riverbank and 3,000 feet of previously installed bulkheads.

AUTHORIZATION: Water Resources Development Act of 1986 (PL 99-662).

REMAINING BENEFIT-REMAINING COST RATIO: 2.7 to 1.0 at 7-3/4 percent.

TOTAL BENEFIT-COST RATIO: The current benefit to cost ratio is 1.2 to 1.0 at 8-1/4 percent.

INITIAL BENEFIT-COST RATIO: 1.5 to 1.0 at 8-7/8 percent (FY 1992).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation in the Limited Reevaluation Report dated April 1993 (Oct 1992 price levels).

SUMMARIZED FINANCIAL DATA:

			STATUS (1 January 96)	Percent Complete	Completion Schedule
Estimated Appropriation Requirement (CofE)		$16,133,000	Entire Project	65	Sep 97
Estimated Total Appropriation Requirement		16,133,000			
Future Non-Fed Reimbursement		0			
Estimated Federal Cost (Ultimate)		16,133,000			
Estimated Non-Fed Cost		5,379,000			
Cash Contributions	$4,179,000				
Other	1,200,000				
Total Estimated Project		$21,512,000			

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUMULATED % OF EST. FED COST
Allocations to 30 September 1995	$9,633,000	
Conference Allowance for FY 1996	0	
Allocations for FY 1996	2,700,000 1/	
Allocations through FY 1996	12,333,000	76
Allocation requested for FY 1997	3,800,000	100
Programmed Balance to Complete after FY 1997	0	
Unprogrammed Balance to Complete after 1997	0	

PHYSICAL DATA

River Bank Protection 6,500 feet

1/ Reflects $2,700,000 reprogrammed into the project.

JUSTIFICATION: Bethel is the major educational, economic, social, and cultural community in southwest Alaska serving an area largér than the State of Oregon. The economy of Bethel is based on commercial fishing, transportation, and government. For the last 40 years the riverbank at Bethel has been seriously eroded by the Kuskokwim River. This erosion has caused the loss of valuable waterfront land, roads, and utilities, and has forced a number of businesses to move back from the river, their economic lifeline. With continued erosion, full development of the fishery and transportation industry cannot occur. The City of Bethel has constructed a number of structures to temporarily protect certain areas of the river bank. The Corps project will require modification to the city's project. The average annual benefits attributable to the project are estimated to be $2,260,000.

FISCAL YEAR 1997: The requested amount of $3,800,000 will be applied as follows:

Complete Erosion Control Construction	$3,150,000
Engineering and Design	150,000
Construction Management	500,000
Total	$3,800,000

NON-FEDERAL COST: In accordance with-the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation Maintenance and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas (LERR).	$1,200,000	
Pay 25 percent of the costs including LERR.	$5,379,000	
Total Non-Federal Costs	$5,379,000	$245,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The City Council of Bethel, Alaska, signed the Project Cooperation Agreement on 3 March, 1994.

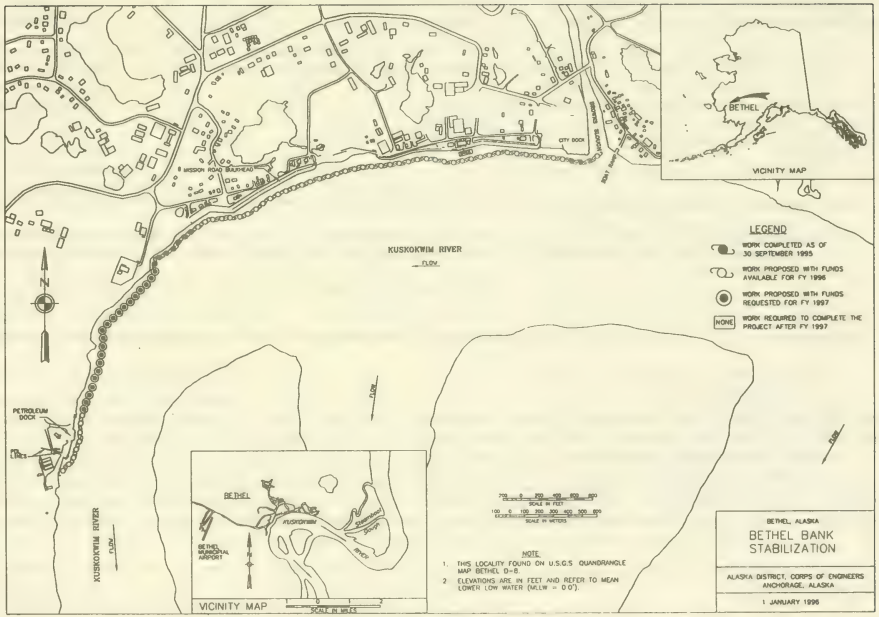
COMPARISON OF FEDERAL COST ESTIMATE: The current Federal Cost Estimate of 16,133,000 is an increase of $1,433,000 over the last estimate ($14,700,000) presented to Congress (FY 1995). This increase is primarily due to emergency work required during construction.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT AND COMPLIANCE WITH CLEAN WATER ACT:

a. The final supplemental environmental impact statement was submitted to EPA in May 1988. Project design changes require the preparation of an environmental assessment which is scheduled to be submitted for public review in January 1993.

b. The provisions of Section 404 of the Clean Water Act were met with the submission of the EIS including a Section 404 (b)(1) evaluation to Congress in July 1988. A new Section 404 (b)(1) evaluation will be prepared to cover design changes.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1984 and funds to initiate construction were appropriated in FY 1992. The scheduled completion date of September 1997 is a delay of 2 years from the last completion date (FY 1995) presented to Congress. The delay was due to delays executing the Project Cooperation Agreement and in real estate acquisition by the local sponsor, City of Bethel, AK.


KUSKOKWIM RIVER
FLOW
MISSION ROAD BEAUREAU
CITY DOCK
UNITED SEAFOOD
PETROLEUM DOCK
KUSKOKWIM RIVER
FLOW
BETHEL
BETHEL MUNICIPAL AIRPORT
FISHTRAP
VICINITY MAP
SCALE IN MILES
BETHEL
VICINITY MAP
LEGEND
WORK COMPLETED AS OF 30 SEPTEMBER 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997
NONE
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997
SCALE IN FEET
SCALE IN METERS
NOTE
1. THIS LOCALITY FOUND ON U.S.G.S. QUADRANGLE MAP BETHEL D-6.
2. ELEVATIONS ARE IN FEET AND REFER TO MEAN LOWER LOW WATER (MLLW = 0.0').
BETHEL, ALASKA
BETHEL BANK STABILIZATION
ALASKA DISTRICT, CORPS OF ENGINEERS
ANCHORAGE, ALASKA
1 JANUARY 1996

18 MAR 1996

APPROPRIATION TITLE: Construction, General - Reservoirs (Flood Control)

PROJECT: Elk Creek Lake, Oregon (Continuing)

LOCATION: In Jackson County, on Elk Creek, a tributary of Rogue River, at river mile 1.7 about 26.5 miles north of Medford, Oregon.

DESCRIPTION: The Elk Creek Lake Project was authorized as one of three multiple-purpose dams in the Rogue River Basin. The three dams were designed to operate as a system to reduce flooding and to accomplish additional purposes of water supply, irrigation, fish and wildlife enhancement, hydropower, and recreation. Two of the three dams are complete and operating. Features of the partially completed Elk Creek Lake project include a 249-foot high, roller-compacted, concrete, gravity dam; a gate controlled concrete chute spillway; regulating outlet conduits; a diversion for power penstock; and a multiple use in-take tower attached to the upstream face of the dam. Based on the selected alternative described in final EIS Supplement Number 2, filed 1 May 1991; the project would be redesigned for interim operation with no conservation pool and with fish passage.

AUTHORIZATION: 1962 Flood Control Act

REMAINING BENEFIT - REMAINING COST RATIO: The remaining benefit-remaining cost ratio is 0.61 to 1 at the authorized rate of 3 1/4%.

TOTAL BENEFIT - COST RATIO: The total benefit-cost ratio is 0.36 to 1 at 3 1/4%.

INITIAL BENEFIT - COST RATIO: The benefit-cost ratio for the fiscal year for which Congress appropriated initial construction funds (FY 1971) was 1.01 to 1 at a 3 1/4% rate and was based on project's fair share of system benefits.

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation reported in June 1983 at 1983 price levels.

SUMMARIZED FINANCIAL DATA:			STATUS (1 Jan 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$174,000,000[1]			
Programmed Construction	$109,051,000				
Unprogrammed Construction	64,949,000		Entire Project	72	Unscheduled

[1] Reflects the cost of the selected alternative described in EIS Supplement Number 2. Excludes deferred costs for future potential modification to operate with a conservation pool.

Division: North Pacific District: Portland Elk Creek Lake, OR

980

SUMMARIZED FINANCIAL DATA (Cont'd)

Estimated Non-Federal Cost			$ 0	
Programmed Construction		$ 0		
Cash Contributions	$ 0			
Other Costs	0			
Estimated Non-Federal Cost			0	
Unprogrammed Construction		0		
Cash Contributions	0			
Other Costs	0			

		ACCUM. PCT. OF EST. FED COST
Total Estimated Programmed Cost	109,051,000	
Total Estimated Unprogrammed Cost	64,949,000	
Total Estimated Project Cost	174,000,000	
Allocations to 30 September 1995	107,851,000	
Conference Allowance for FY 1996	500,000	
Allocation for FY 1996	700,000[2]	
Allocations through FY 1996	108,551,000[3]	62%
Allocation Requested for FY 1997	500,000	62%
Programmed Balance to Complete after FY 1997	0	
Unprogrammed Balance to Complete after FY 1997	64,949,000	

PHYSICAL DATA

Dam: Type - Roller compacted concrete. Height - 249 feet; length - 2,580

Concrete Volume - 1,100,000 cu. yds.

Spillway: Type - Concrete gravity. Gate Ogee Section: Design discharge- 68,400 cfs, Gates - 3 (33 feet x 34 feet) tainter.

Lands and Damages: Acres - 3,570

Land Use: Irrigated - 130 acres; Pasture - 182 acres; Wooded - 3,151 acres (of which 841 acres are Government owned); Lesser Interests- 67 acres; Building Sites - 40 acres

Relocations: County Road - 7.9 miles Power and Telephone lines - 15 miles, Cemetery

Reservoir Capacity: Total storage at elev 1,726: 101,000 acre feet; Usable Storage: 95,000 acre feet; Flood Control Storage (elev 1726-1665): 60,000 acre feet; Conservation Storage (elev 1665-1581): 35,000 acre feet; Inactive Storage (elev 1581-1500): 6,000 ac-ft.

[2] Reflects $41,000 reduction assigned as savings and slippage, and $241,000 reprogrammed to the project.
[3] Includes $2,500,000 of FY 93 act language appropriations specifically for Engineering and Design to resume construction.

JUSTIFICATION: Elk Creek Lake could be operated without conservation storage on an interim basis together with Lost Creek and Applegate Lakes as the three-dam Rogue River Basin system to provide flood control. The project would control run-off from about 132-square miles upstream from Elk Creek site. The flood problems occur principally in discontinuous areas in the 50-mile reach of the Rogue River from the junction of Elk Creek downstream to about ten miles past Grants Pass and in scattered areas in the lower 100-mile reach of the Rogue River. The major flood plain comprises some 7,400 acres of hay, alfalfa, pasture orchards (peaches, pears), and hops and affects a population of 14,560. Damages from past floods include agricultural crop losses and land damage due to inundation and erosion; and destruction of industrial, residential, commercial, and recreation developments. A total of 95,000 acre-feet of usable storage would be available at Elk Creek for flood control. The maximum flood that could be completely controlled at the Elk Creek site would have a peak flow of about 19,200 cubic feet per second and a frequency of occurrence of once in about 40 years. During the flood of 1964, the most severe flood since 1861, damages to the area downstream from Elk Creek and Lost Creek Lakes amounted to $13,161,000 of which about $2,350,000 would have been prevented by Elk Creek Lake. The peak stage of a flood such as that of 1964 would be reduced about 5.6 feet at Grants Pass by Lost Creek, and 7.4 feet by Lost Creek and Elk Creek Lakes combined. When there is a need for additional conservation storage in the region, engineering and environmental studies could be initiated to determine the feasibility of modifying operation of the project to include conservation storage. Annual benefits creditable to Elk Creek Lake are estimated to be $2,026,000 based on 1 October 1983 prices, considered as last added increment to the three-dam system and include the following:

Flood Control	$ 1,883,000
Employment	143,000
Total	$ 2,026,000

FISCAL YEAR 1997: The requested amount of $500,000 will be applied as follows:

Continue relocations	$ 16,000
Continue main dam maintenance	67,000
Continue water quality analysis	86,000
Continue fish operations	103,000
Continue Engineering and Design	228,000
Total	$ 500,000

NON-FEDERAL COST: A non-Federal sponsor for this project has not been identified at this time. In the event a sponsor agrees to enter into a Project Cooperation Agreement for municipal and industrial water supply, the sponsor will pay all costs allocated to municipal and industrial water supply and bear all costs of operation, maintenance, and replacement of municipal and industrial water supply facilities; for recreation, the sponsor will pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities; for agricultural water supply, the sponsor will pay all costs allocated to agricultural water supply and bear all costs of operation, maintenance, and replacement of agricultural water supply facilities.

STATUS OF LOCAL COOPERATION: Responsibility for repayment of irrigation costs rests with the Department of Interior pursuant to Federal Reclamation law. Responsible officials of four irrigation districts (Sams Valley, Eagle Point, Applegate Valley, and Rogue River Valley) have furnished preliminary assurances that it is the intention of each individual district to enter into a contract with the Secretary of the Interior to provide reimbursement of irrigation cost within each district's ability to repay such costs pursuant to reclamation law. Pursuant to Public Law 91-439, October 7, 1970, the project will not be operated for irrigation purposes until such time as the Secretary of the Interior makes the necessary arrangements with non-Federal interests to recover the costs, in accordance with the Federal Reclamation Law, which are allocated to the irrigation purpose. Assurances for future purchase of municipal and industrial water supply have been obtained from six communities in the valley: Medford, Grants Pass, Shady Cove, Sams Valley, Eagle Point, and Gold Hill. Phoenix, Oregon, a suburb of Medford, is currently purchasing municipal and industrial water supply storage at Lost Creek Lake.

Recreation facilities will not be scheduled until development of cost sharing agreements with local interests for construction and non-Federal operation and maintenance, consistent with projects for which recreation facilities are being constructed under provisions of the Federal Water Project Recreation Act of 1965 (PL 89-72), as amended.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $174,000,000 is the same as the last estimate submitted to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Statement was filed with CEQ on September 17, 1971. Supplement No. 1, addressing water quality effects, was filed with EPA on December 24, 1980, and a Record of Decision was filed with EPA in February 1982. An environmental assessment addressing design changes (such as roller compacted concrete instead of embankment dam) was completed on October 11, 1983. Supplemental Information Reports dated September 23, 1985 and January 14, 1986 were provided to the public; these reports described the findings of the 1983 environmental assessment and other new information which had become available since the 1980 EIS Supplement. Another EIS supplement has been prepared as a result of litigation; this Supplement was completed and filed with the EPA on May 1, 1991. A Record of Decision, selecting the no conservation pool as the interim operating alternative, was signed on January 24, 1992.

OTHER INFORMATION:

Background

Funds to initiate preconstruction planning were appropriated in FY 1965, and for construction in FY 1971. Construction was deferred in FY 1977 due to a lack of state support. Following significant review, evaluation, and a public hearing, the Water Policy Review Board reversed its position and in April 1981 voted to support Elk Creek. Funds were appropriated in FY 1982 and FY 1983 to update and continue project design, plans, and specifications. Funds were appropriated in FY 1985 to resume construction. The Oregon Natural Resource Council (ONRC), a local environmental group, filed a suit against the U.S. Government in March of 1983 to halt construction of the Elk Creek Lake project based on alleged NEPA violations. U.S. District Court ruled on January 16, 1986, in favor of the U.S. Government. ONRC filed an appeal with the U.S. Ninth Circuit Court of Appeals who overturned the District Court ruling on June 23, 1987. The U.S. District Court in turn issued an injunction to limit the construction of the dam to elevation 1,563 feet on August 31, 1987. The U.S. Government filed for a rehearing of the U.S. Ninth Circuit Court of Appeals' ruling of June 23, 1987, and on December 10, 1987, the U.S. Ninth Circuit Court of Appeals denied the request. The U.S. Department of Justice filed a Writ of Certiorari (appeal) with the Supreme Court on April 14, 1988. On 1 May 1989, the U.S. Supreme Court unanimously reversed the Ninth Circuit Court and remanded the case. The injunction remained in effect pending completion of an Environmental Impact Statement Supplement No. 2 (EISS #2) as required by the U.S. Ninth Circuit Court of Appeals. Endangered Species Act coordination with the U.S. Fish and Wildlife Service was completed on December 27, 1991 and found no impact on the continued existence of the three species of wildlife in question.

In response to the final EISS #2, the Governor of Oregon stated that the dam should not be finished and urged that the existing structure be removed and the site restored. According to the Governor, an acceptable alternative would be to abandon the structure, with appropriate modifications for public safety and fish passage. The majority of the comments to the final EISS #2 stated that the Elk Creek Lake Project should be completed and operated with a full conservation pool. The need for stored water was used to justify this opinion in nearly all instances.

On November 5, 1992, the US Forest and the Bureau of Land Management issued a determination of the existing project's impact on the Wild and Scenic Section of the Rogue River beginning 57 miles downstream. The determination stated the project would not unreasonably diminish the wild and scenic river values when effective fish passage is provided under the no conservation pool alternative. A lawsuit alleging violations of the Wild and Scenic Rivers Act by the Corps, US Forest Service and the Bureau of Land Management was filed with the US District Court on December 7, 1992.

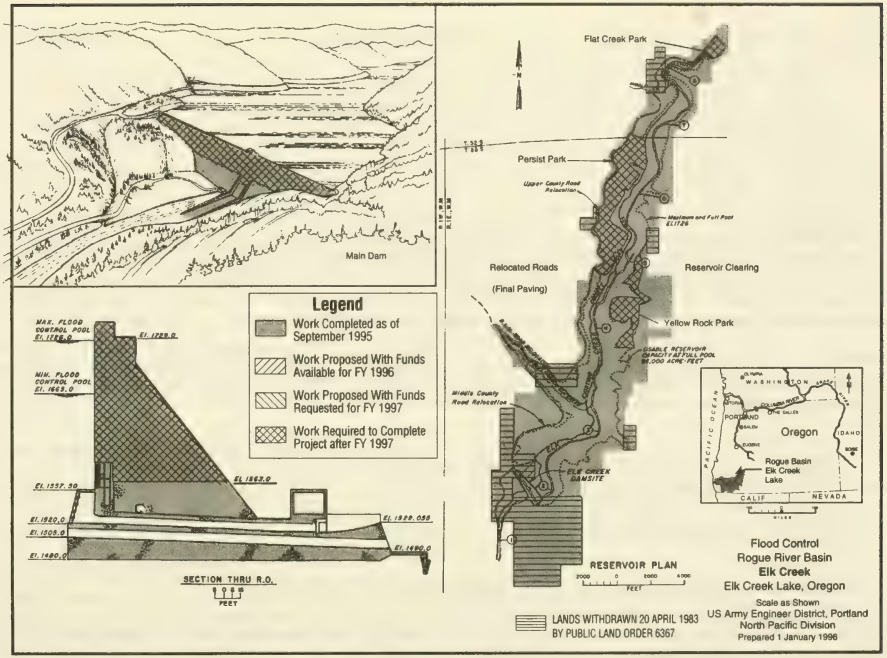
On July 22, 1992, the Department of Justice filed a motion with the Court to remove the injunction. A hearing was held on May 20, 1993. A second hearing on cross motions for summary judgement was held on December 17, 1993. The Court issued an opinion and order in February 1994, ruling that EISS #2 met the requirements of the previous court order and the first lawsuit was dismissed and injunction was removed. However, the Court also ruled that the Corps failed to justify its decision not to further supplement the EIS in light of new information concerning the status of fisheries in

OTHER INFORMATION: (continued)
the Rogue River. The Court also ruled that the project could not be completed until the fish passage concerns of the U.S. Forest Service and Bureau of Land Management are eliminated. The Court remanded the case to the Corps to consider the new information and study fish passage and also imposed a new injunction against completion of the project. The ONRC and DOJ filed appeals with the 9th Circuit Court of Appeals, and on October 31, 1994 oral arguments were held on the issues of the legal sufficiency of EISS #2 and on the authority of USFS/BLM to issue a Section 7(a) Determination under the Wild and Scenic Rivers Act.

The Ninth Circuit Court of Appeals ruled on the two cases on April 21, 1995. In a unanimous decision, the Court ruled that the U.S. Forest Service and Bureau of Land Management do not have a veto authority over purely Federal projects under the wild and scenic Rivers Act where Congress makes the decision to authorize and fund their development. In a 2-1 decision, the Court also reversed the District Court decision that EISS #2 met the requirements of the earlier Ninth Circuit opinion and awarded attorneys fees to the plaintiffs. The case was remanded with instructions to prepare a third supplement adequately addressing all issues raised under the NEPA process.

Long Term Management Plan
Due to the Ninth Circuit Court of Appeals decision and the current Federal budgetary climate, the Corps does not plan to perform the environmental studies under the National Environmental Policy Act (NEPA) necessary to remove the Federal court injunction against completion of the project. Therefore, an evaluation of the requirements for long term management of the project in its uncompleted state will be required.

The North Pacific Division Engineer notified the Congressional Appropriations Committees on 6 November 1995 of the Corps intention to begin studies of options for long term management of the project in its uncompleted state. We plan to evaluate and implement measures in a two phase process. The first phase will be to expedite provision of long term fish passage measures, most likely through removal or modification of the spillway. During construction of the modification, fish passage around the project will continue to be provided through funding of the Oregon Department of Fish and Wildlife. The second phase will evaluate and implement measures required to resolve land management, equipment and gravel disposition, cultural resource requirements and other issues.


Main Dam
Legend
Work Completed as of September 1995
Work Proposed With Funds Available for FY 1996
Work Proposed With Funds Requested for FY 1997
Work Required to Complete Project after 1997
MAX. FLOOD CONTROL POOL EL. 1728.0
MIN. FLOOD CONTROL POOL EL. 1663.0
EL. 1728.0
EL. 1663.0
EL. 1557.50
EL. 1520.0
EL. 1505.0
EL. 1480.0
EL. 1509.050
EL. 1490.0
SECTION THRU R.O.
FEET
Flat Creek Park
Persist Park
Upper County Road Relocation
Maximum and Full Pool EL.1726
Relocated Roads
(Final Paving)
Reservoir Clearing
Yellow Rock Park
USABLE RESERVOIR CAPACITY AT FULL POOL 89,000 ACRE-FEET
Middle County Road Relocation
ELK CREEK DAMSITE
RESERVOIR PLAN
FEET
WASHINGTON
PORTLAND
OREGON
IDAHO
PACIFIC OCEAN
Rogue Basin
Elk Creek
Lake
CALIF
NEVADA
LANDS WITHDRAWN 20 APRIL 1983 BY PUBLIC LAND ORDER 6367
Flood Control
Rogue River Basin
Elk Creek
Elk Creek Lake, Oregon
Scale as Shown
US Army Engineer District, Portland
North Pacific Division
Prepared 1 January 1996

APPROPRIATION TITLE: Construction, General - Dam Safety Assurance

PROJECT: Howard Hanson Dam, Washington - (Continuing)

LOCATION: Howard Hanson Dam is located on the Green River, 23 miles upstream and east of Auburn, and 35 miles southeast of Seattle in western Washington.

DESCRIPTION: Project modifications will strengthen the existing reservoir outlet tower to withstand the Maximum Credible Earthquake (MCE) by adding braces to increase the tower section.

AUTHORIZATION: Flood Control Act of 1950 authorized the construction of the Eagle Gorge reservoir on the Green River. The project name was changed to Howard A. Hanson in 1958 by P.L. 85-592.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable to dam safety assurance projects.

INITIAL BENEFIT - COST RATIO: Not applicable to dam safety assurance projects.

SUMMARIZED FINANCIAL DATA

			STATUS (1 Jan 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost	$1,760,000		Entire Project	17	Jan 98
Estimated Non-Federal Cost	13,700				
Total Estimated Project Cost	$1,773,700	Accum. Pct. of Est. Fed. Cost			
Allocations to 30 September 1995	360,000				
Conference Allowance for FY 1996	1,587,000				
Allocation for FY 1996	0	1/			
Allocations thru FY 1996	360,000	20			
Amount Requested for FY 1997	1,400,000	100			
Programmed Balance to Complete after FY 1997	0				
Unprogrammed Balance to Complete after FY 1997	0				

1/ Funds were reprogrammed to other ongoing projects due to a FY 96 funding shortfall in continuing contracts.

PHYSICAL DATA:

Dam: Type: Rolled earth and rockfill
Height: 235 feet above bedrock
Crest: 500 feet long
Width: 960 feet at base, 23 feet at crest

Spillway: Type: Ogee crest with two 45'x30' tainter gates
Design Capacity: 107,000 cfs
Overtopping Capacity: 119,000 cfs

Outlet Tower:
Type: Reinforced Concrete
Free standing section: 107 feet
Base section: 105 feet

19 Ft. Tunnel:
Capacity: 22,000 cfs open channel flow
Normal Release: 10,000 cfs
Length: 900 feet

JUSTIFICATION: Howard A. Hanson Dam provides flood control storage on the Green River. Downstream of the dam is the Auburn-Kent Valley with the cities of Auburn, Kent, Renton, Algona, Pacific, and Tukwila. The dam provides protection for residential areas, agricultural lands, and intensively developed industrial and commercial areas. The Boeing Space Center, a major defense contractor, is located in the center of the Kent Valley. The number of people who work or live in the flood plain exceeds 200,000. The dam has prevented $672 million in flood damages since it began operations in 1962, including an estimated $246,000,000 of flood damages prevented from the February 1996 rain storms.

Dam Safety Assurance Program Evaluation Report, Howard A. Hanson Dam, January 1994 evaluated the ability of the existing dam to remain safe during and after the Maximum Credible Earthquake (MCE) and to remain operational during and after an Operating Basis Earthquake (OBE). A dynamic analysis earthquake study indicates that the present flood control outlet works tower (outlet tower) would fail during an earthquake event of less severity than the OBE. Failure of the outlet tower would result in direct costs of $5,200,000 (January 1995 price level) and in a minimum of $145,000,000 in economic damages. Failure of the outlet tower could lead to dam failure, with catastrophic downstream consequences including loss of life. There is nearly a 90 percent chance, during the 100-year life of the Howard A. Hanson project, that the present outlet tower will fail due to a seismic event.

Impacts to the environment due to tower failure would fall into several categories: direct and immediate, indirect, and cumulative. Occurring simultaneously with tower failure, or immediately thereafter, concrete debris and dust, hydraulic fluid, and other similar materials would enter the water. Water quality would be degraded and the reservoir would turn into an uncontrolled flow condition.

More significant, however, are impacts associated with the magnitude, timing, and duration of uncontrolled outflows from the Howard A. Hanson reservoir. Such flows would result in the types of environmental impacts associated with major flooding. Water quality, fish and wildlife habitat, and wetlands would be degraded for the long term. Damage could

988

JUSTIFICATION (continued)
amount to the elimination of entire year classes of one or more anadromous fish species downstream or of some runs completely. Uncontrolled discharges of any but the most modest extent would seriously compromise the quality of the city of Tacoma's water supply. Failure of the outlet tower would be just one of many impacts of an earthquake on the area's infrastructure. As such, the impacts of the tower failure would have a compounding effect. For instance, concomitant damage of the city of Tacoma's water supply diversion structure could have long term dire implications for water supply and human health.

FISCAL YEAR 1997: The requested amount of $1,400,000 will be applied as follows:

Modify Dam Outlet Tower	$1,240,000
Engineering and Design	70,000
Construction Management	90,000
Total	$1,400,000

NON-FEDERAL COSTS: King County, Washington, is the local sponsor for the project.

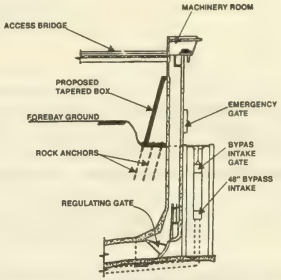
STATUS OF LOCAL COOPERATION: Howard A. Hanson Dam is 100% federally owned and operated. Under the provisions of P.L. 99-662, Section 1203, 15 percent of the costs of project modifications will be shared in accordance with the cost sharing in effect at the time of initial project construction. There were contributions from non-Federal interests to reflect local benefits from land enhancement that totalled 5.1 percent of the initial cost of the Howard A. Hanson project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $1,760,000 is a decrease of $187,000 from the last estimate (FY 1966) presented to Congress.

OTHER INFORMATION: Dam Safety Assurance Program Evaluation Report, Howard A. Hanson Dam was approved in May 1994.

The scheduled completion date of January 1998 is a delay of 12 months from the last completion date (FY 1996) presented to Congress. The delay was due to a Construction General funding shortage in FY 1996 for on ongoing committed contract work at other projects. The Howard Hanson project contract was not awarded in FY 1996 and the funds were reprogrammed from the project.

989



PROPOSED STRUCTURAL MODIFICATION TAPERED BOX
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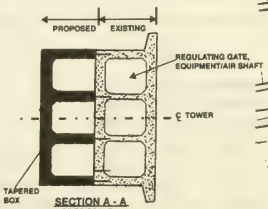
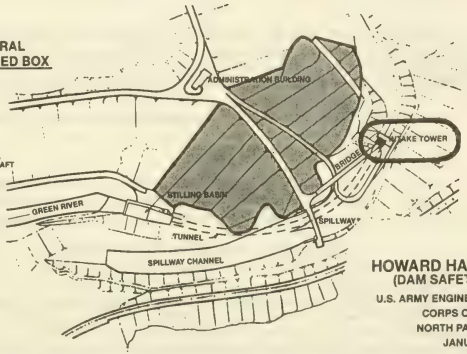


SECTION A - A
NOT TO SCALE

LEGEND

WORK COMPLETED AS OF 30 SEP 1995	NONE
WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1996	NONE
WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997	■
WORK REQUIRED TO COMPLETE THE PROJECT AFTER 30 SEP 1997	NONE



HOWARD HANSON DAM, WA.
(DAM SAFETY ASSURANCE)
U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
NORTH PACIFIC DIVISION
JANUARY 1996

APPROPRIATION TITLE: Construction, General - Multiple-Purpose Power Projects

PROJECT: Bonneville Second Powerhouse, Oregon and Washington (Continuing)

LOCATION: On the Columbia River at river mile 146 and 42 miles east of Portland, Oregon.

DESCRIPTION: Construction of a Second Powerhouse, modification for peaking, and associated fish passage facilities.

AUTHORIZATION: 1933 Federal Emergency Administration of Public Works; 1935 River and Harbor Act; 1937 Bonneville Project Act; WRDA of 1974; FY 1984 Second Supplemental Appropriation, PL 98-396, Title I, Chapter IV; and Defense Appropriation Act of Fiscal Year 1993, PL 102-396.

REMAINING BENEFIT - REMAINING COST RATIO: The remaining benefit-remaining cost ratio is not applicable because the project is nearing completion.

TOTAL BENEFIT - COST RATIO: 8.2 to 1 at 3-1/4 percent.

INITIAL BENEFIT - COST RATIO: 2.3 to 1 at 3-1/4 percent (FY 1974). The benefit-cost ratio was based on the project's fair share of system benefits in the Columbia River system; as the next added unit in this system the benefit-cost ratio was 2.3 to 1.

BASIS OF BENEFIT - COST RATIO: Benefits are from General Design Memorandum approved in May 1973 at July 1971 price levels.

SUMMARIZED FINANCIAL DATA				STATUS (1 Jan 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Total Appropriation Requirement			$678,714,000 1/	Entire Project	99	Sep 97
Future Non-Federal Reimbursement			$663,009,000			
Estimated Federal Cost (Ultimate)			15,705,000			
Estimated Non-Federal Cost			663,247,000			
Other Costs		238,000				
Reimbursements		$663,009,000				
Power	$663,009,000					
Total Estimated Project Cost			$678,952,000			

23-577 96 – 32

SUMMARIZED FINANCIAL DATA (Cont'd)

		Accumulated Percentage of Estimated Federal Cost
Allocations to 30 September 1995	$678,114,000	
Conference Allowance for FY 1996	0	
Allocation for FY 1996	0	
Allocations through FY 1996	678,114,000	99
Allocation Requested for FY 1997	600,000	100
Scheduled Balance to Complete after FY 1997	0	
Unscheduled Balance to Complete after FY 1997	0	

1/ Construction of Bonneville Dam with an initial power installation of 10 units (518,400 kw capacity) was completed in 1953 at a cost of $83,239,395. The project was modified for peaking at a cost of $27,195,000 and was completed in 1978. The estimated cost shown is for the additional powerhouse project only.

PHYSICAL DATA

Power Installation: 8 Units @ 66,500 kw; 2 fish turbine/generator units @ 13,100 kw; Total 558,200 kw; Head - 52 feet

Relocations: Wash State Hwy No. 14 - 3-3/4 miles	$ 9,840,000
Burlington Northern Railroad - 3 miles	21,677,000
Town of North Bonneville and associated utilities	27,453,000

Lands and Damages: Acres - 2,140; Project area includes the existing town site of North Bonneville as well as undeveloped and pasture lands in the surrounding area and the Steigerwald Lake area located in Clark County, about 21 miles downstream of Bonneville Dam.

992

JUSTIFICATION: The Bonneville Second Powerhouse project provides an essential part of the generation required by the Federal system during peak demand and is used to replace existing high-cost thermal generation during non-peak periods. The project has 589 MW of dependable capacity and produces on an average annual basis 1,471,621 MWH of energy. Total average annual benefits are estimated to be:

Annual Benefits	Amount
Power	$247,814,000
Recreation	763,000
Total	$248,577,000

FISCAL YEAR 1997: The requested amount of $600,000 will be applied as follows:

Complete Real Estate Activities	$300,000
Complete Fish and Wildlife Habitat Development	150,000
Complete construction of miscellaneous project features	90,000
Engineering and Design	40,000
Construction Management	20,000
Total	$600,000

NON-FEDERAL COSTS: Costs allocated to power, presently estimated at $663,009,000, are reimbursable. This project is a part of the Federal Columbia River power system. Bonneville Power Administration, the Federal marketing agency, establishes system rate levels adequate to recover all capital investment cost for generating projects (including Corps' generating projects) within 50-year period and to repay annual OM&R and interest expenses. BPA submits annual financial statements to Congress, as required by law, on repayment and periodically recommends rate adjustment as required for meeting repayment obligations. Fifty percent of the recreation costs ($238,000) have been provided by a non-Federal interest under a cost sharing agreement.

STATUS OF LOCAL COOPERATION: None required for construction of the powerhouse facilities. Responsibility for repayment of power costs rests with the Department of Energy pursuant to Federal laws. An agreement for non-Federal participation requirements for Home Valley Park recreation facilities with Skamania County, Washington, was completed on 24 January 1986. Construction of Home Valley Park was completed in Fiscal Year 1989.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $679,214,000 is a decrease of $3,786,000 in the Federal (Corps) cost estimate from the latest estimate ($683,000,000) presented to Congress (FY 1995). This decrease is due to reduced contingencies and other estimating adjustments.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (EIS) was filed with Council on Environmental Quality (CEQ) on 14 April 1972. An EIS supplement for relocation of the City of North Bonneville was filed with CEQ on 19 March 1976. Additional environmental documentation pursuant to NEPA will be accomplished as necessary. Consultations with the National Marine Fisheries Services will be held and biological assessments prepared as necessary to conform with requirements of the Endangered Species Act.

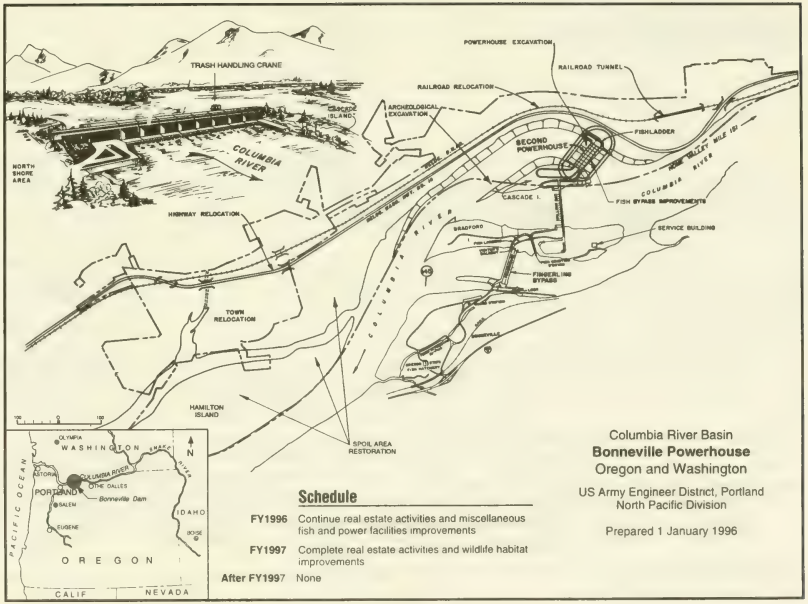
OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1967 and funds to initiate construction were appropriated in FY 1974.

Funds in the amount of $8,500,000 were appropriated in FY 1984 for acquisition and initial development of the Steigerwald Lake Wetland Area, Clark County, Washington, for the fish and wildlife mitigation purposes associated with the project. Transfer of approximately 600 acres to this area to the U.S. Fish and Wildlife Services (USFWS) without monetary consideration was accomplished in FY 1988. PL 102-104, authorized transfer of portions of the remaining 82 acre parcel to the Port of Camas/Washougal at fair market value, to be used for recreational and/or industrial purposes. The remaining portion of this parcel is authorized for transfer without monetary consideration to USFWS. The current Federal cost estimate includes $128,080,000 for fish and wildlife mitigation, and associated lands, engineering and design, and supervision and administration.

On 13 October 1992, the Environmental Protection Agency placed the 240 acre Hamilton Island disposal site on the National Priorities List (NPL) of contaminated sites (Federal Register 57 FR 47180). The investigation was completed with determination by EPA that no action was necessary and the site has been deleted from the NPL. Removal of investigation monitoring wells and site wildlife habitat restoration is planned in FY 97.

Legislation included in Section 9147 of Department of Defense Appropriations Act of 1993, Public Law 102-396, directed among other things that certain parcels of Corps administered land, be deeded to the City of North Bonneville. Portions of the legislation were challenged by the Department of Justice, which ultimately resulted in action by Rep. Linda Smith (WA) to prepare corrective legislation that is to be proposed as part of Water Resource Development Act 1996. Passage of the corrective legislation will allow the Corps to proceed to transfer relocation deeds to the city of North Bonneville.

994



Columbia River Basin
Bonneville Powerhouse
Oregon and Washington

US Army Engineer District, Portland
North Pacific Division

Prepared 1 January 1996

Schedule

FY1996	Continue real estate activities and miscellaneous fish and power facilities improvements
FY1997	Complete real estate activities and wildlife habitat improvements
After FY1997	None

APPROPRIATION TITLE: Construction, General - Multiple Purpose Power

PROJECT: Columbia River Treaty Fishing Access Sites, Oregon and Washington (Continuing)

LOCATION: Thirty-one sites located along the Columbia River on Bonneville Pool, John Day Pool, and The Dalles Pool.

DESCRIPTION: The project will acquire and develop private lands on Bonneville Pool and develop Federal lands on Bonneville, the Dalles and John Day pools. The intent is to provide "equitable satisfaction" of the United States government's commitment to replace usual and accustomed fishing sites inundated by construction of the Bonneville Dam. In 1855, the Tribes reserved the right to access and fish at usual and accustomed sites through treaties. These rights have been upheld by the United States Supreme Court in 1905 and again in 1919. The improvements will include access roads, camping facilities, boat ramps and docks, sanitation and support facilities. Upon improvement, the land and improvements will be transferred to the U.S. Department of Interior for operation and administration on behalf of the Tribes.

AUTHORIZATION: Public Law 100-581, Title IV and Public Law 104-109.

REMAINING BENEFIT - REMAINING COST RATIO: N/A 1/

TOTAL BENEFIT-COST RATIO: N/A 1/

THE INITIAL BENEFIT - COST RATIO: N/A 1/

BASIS OF BENEFIT-COST RATIO: N/A 1/

SUMMARIZED FINANCIAL DATA			STATUS (1 Jan 96)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Appropriation Requirement		$ 74,400,000	Entire Project	3	Being Determined
Future Non-Federal Reimbursement		37,200,000			
Estimated Federal Cost (Ultimate)		37,200,000			
Estimated Non-Federal Cost		37,200,000			
Reimbursement	$ 37,200,000				
Power 37,200,000					
Total Estimated Project Cost		$ 74,400,000			

Division: North Pacific District: Portland Columbia River Treaty Fishing Access Sites, OR & WA

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. % OF EST. FED COST	PHYSICAL DATA
Allocations to 30 September 1995	$ 4,852,000		
Conference Allowance for FY 1996	1,720,000		Improvements: Access roads, utilities, and camping facilities.
Allocation for FY 1996	4,720,000 2/		
Allocations through FY 1996	9,572,000	13	
Allocation Requested for FY 1997	4,300,000	20	
Programmed Balance to Complete after FY 1997	60,528,000		
Unprogrammed Balance to Complete after FY 1997	0		

1/ Economic justification is not required. This project is specifically authorized in PL 100-581 to mitigate Bonneville Project impact on the treaty fishing access on the Columbia River.

2/ Reflects $50,000 reduction assigned as savings and slippage and $3,050,000 reprogrammed to the project.

JUSTIFICATION:
In 1855, Indian Tribes of the Pacific Northwest entered into treaties with the United States. They ceded title to lands in the Columbia Basin and reserved the non-reservation treaty right to access the Columbia River and to take fish at "usual and accustomed" fishing places. In the 1930's, the United States constructed Bonneville Dam which inundated 37 of the treaty protected "usual and accustomed" sites. In accordance with a 1939 agreement between the War Department and the Indian Tribes, the United States was to provide 400 acres of land at six sites from Bonneville Dam to The Dalles, Oregon. Under subsequent authority the United States provided five sites totaling approximately 40 acres. In hearings held by the United States Senate Select Committee on Indian Affairs, Congress acknowledged the inequity and later enacted Public Law 100-581, Title IV - Columbia River Treaty Fishing Access Sites. The project is justified as it provides "equitable satisfaction" of the United States government's commitment to replace those lands inundated by construction of the Bonneville project in accordance with the authorizing legislation.

FISCAL YEAR 1997: The requested amount of $4,300,000 will be applied as follows:

Continue Lands and Damages	$ 607,000
Complete Contract A begin Contract C	2,014,000
Continue Cultural Resource Preservation	165,000
Continue Engineering, and Design	1,264,000
Continue Construction Management	250,000
Total	$ 4,300,000

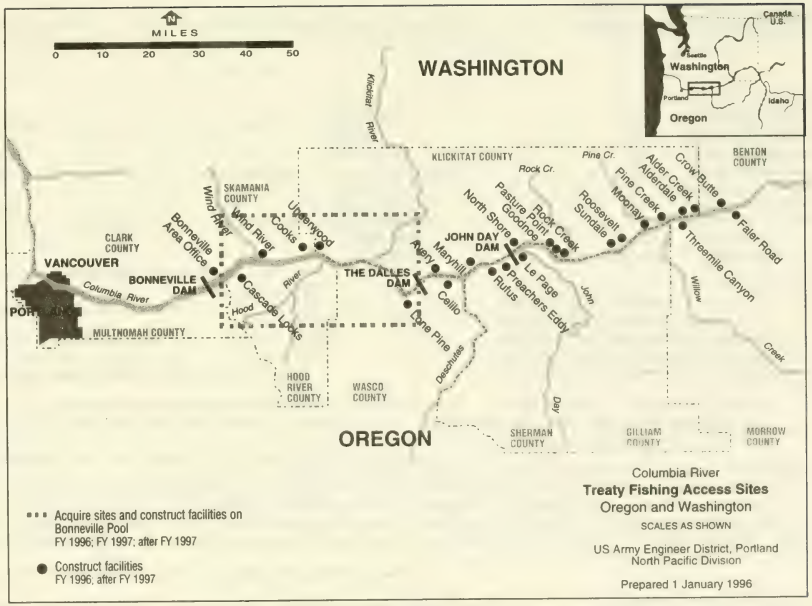
NON-FEDERAL COSTS: The project design and construction will be initially Federally funded in compliance with the intent of PL 100-581. However, costs allocated to power, presently estimated at $37,200,000, are reimbursable. This project is a part of the Federal Columbia River power system. Bonneville Power Administration (BPA), the federal marketing agency, establishes system rate levels adequate to recover all capital investment cost for generating projects (including Corps generating projects) within 50-year period and to repay annual OM&R and interest expenses. BPA submits annual financial statements to Congress, as required by law, on repayment and periodically recommends rate adjustment as required for meeting repayment obligations.

STATUS OF LOCAL COOPERATION: N/A

COMPARISON OF FEDERAL COST ESTIMATE: This is the first time both phases of the project have been presented to Congress. The first phase was presented to Congress in FY 1995 and had a Federal estimate of $6,300,000. With the addition of the second phase, and an additional requirement for capitalization payments of the long-term O&M for all sites, the new Federal estimate is $74,400,000.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Draft Environmental Assessment indicates the potential environmental impacts from the development are minor. The Environmental Assessment was completed and a Finding of No Significant Impact was signed in April, 1995.

OTHER INFORMATION: The four involved Indian tribes include the Nez Perce Tribe of Idaho, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Confederated Tribes and Bands of the Yakima Indian Nation. The Evaluation Report and the Post Authorization Change Report indicated that the recommended project is technically sound, cost effective, environmentally acceptable, and complies with applicable Corps of Engineers' procedures and regulations. However, the Post Authorization Report notified Congress of required changes to the boundaries or locations of 19 sites to improve constructability. Specific legislative language will need to be enacted. Also, the views of interested parties, including federal, state, and local agencies, have been considered. On 23 June 1995, a Memorandum of Understanding was signed between ASA(CW) and BIA for the Corps to fund up-front the capitalized costs for long-term O&M for all sites. Public Law 104-109 authorizes the Corps to transfer the capitalized costs to BIA.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MILES
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WASHINGTON
OREGON
Canada
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Idaho
Klickitat River
KLICKITAT COUNTY
Pine Cr.
Rock Cr.
BENTON COUNTY
Crow Butte
Alder Creek
Alderdale
Pine Creek
Moonay
Roosevelt
Sundale
Rock Creek
Pasture Point
Goodnoe
North Shore
Faler Road
Threemile Canyon
Willow Creek
John Day
Le Page
Preachers Eddy
Rufus
JOHN DAY DAM
Celilo
Maryhill
Avery
THE DALLES DAM
Lone Pine
Deschutes
SKAMANIA COUNTY
Underwood
Cooks
Wind River
Hood River
Bonneville Area Office
CLARK COUNTY
VANCOUVER
BONNEVILLE DAM
Columbia River
Cascade Locks
Hood River
PORTLAND
MULTNOMAH COUNTY
HOOD RIVER COUNTY
WASCO COUNTY
SHERMAN COUNTY
GILLIAM COUNTY
MORROW COUNTY
Acquire sites and construct facilities on Bonneville Pool
FY 1996; FY 1997; after FY 1997
Construct facilities
FY 1996; after FY 1997
Columbia River
Treaty Fishing Access Sites
Oregon and Washington
SCALES AS SHOWN
US Army Engineer District, Portland
North Pacific Division
Prepared 1 January 1996

18 MAR 1996

APPROPRIATION TITLE: Construction, General - Multiple Purpose Power

PROJECT: Columbia River Fish Mitigation, Washington, Oregon, & Idaho (Continuing)

LOCATION: Lock and Dam projects on the Lower Columbia and Snake Rivers.

DESCRIPTION: The mitigation consists of (1) continued construction of fish bypass improvements at Lower Granite, Little Goose, Lower Monumental, and Ice Harbor on the Snake River; and McNary, John Day, The Dalles, and Bonneville on the Columbia River, (2) a mitigation analysis, prepared in cooperation with regional interests, to evaluate additional measures to increase fish survival at Corps dams on the mainstem Columbia and Snake Rivers. The mitigation analysis provides the analytical process for consideration and implementation of Federal actions necessary to support regional and National Marine Fisheries Service (NMFS) salmon recovery initiatives.

AUTHORIZATION: 1933 Federal Emergency Administration of Public Works; 1935, 1945 and 1950 River and Harbor Acts; 1937 Bonneville Project Act; and the 1950 Flood Control Act

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable 1/

TOTAL BENEFIT-COST RATIO: Not applicable 1/

INITIAL BENEFIT-COST RATIO: Not applicable 1/

BASIS OF BENEFIT-COST RATIO: Not applicable 1/

1/ Mitigation is incrementally justified through consideration of costs and non-monetary and monetary benefits; accordingly, a benefit-cost ratio is not computed.

SUMMARIZED FINANCIAL DATA	
Estimated Total Appropriation Requirement (Corps of Engineers)	$1,382,217,000
Estimated Other Federal Costs (Bonneville Power Administration)	3,783,000
Total Initial Federal Cost	1,386,000,000

STATUS (1 Jan 96)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	17	Being Determined
Lower Granite	12	Being Determined
Little Goose	19	Being Determined
Lower Monumental	23	Being Determined
Ice Harbor	16	Being Determined
McNary	56	Being Determined
John Day	11	Being Determined
The Dalles	17	Being Determined

1000

SUMMARIZED FINANCIAL DATA (Continued)

Future Non-Federal Reimbursement	1,188,900,000 2/	Bonneville	1	Being Determined
Estimated Federal Cost (Ultimate)	197,100,000	Mitigation Analysis	17	Being Determined

Estimated Non Federal Cost		$1,188,900,000
Cash Contributions		0
Other Costs		0
Reimbursements	$1,188,900,000	
Power	$1,188,900,000	

Total Estimated Project Cost $1,386,000,000

		ACCUM. PCT OF EST FED COST
Allocations to 30 September 1995	$ 215,847,000	
Conference Allowance for FY 1996	78,800,000	
Allocation for FY 1996	78,266,000 3/	
Allocation through FY 1996	294,113,000	21
Allocation requested for FY 1997	107,000,000	29
Programmed Balance to Complete after FY 1997	981,104,000	
Unprogrammed Balance to Complete after FY 1997	0	

2/ Allocation for actual reimbursement by the Bonneville Power Administration is made as each element is placed in service.
3/ FY 96 Allocation of $78,266,000 reflects a $6,534,000 reduction assigned as savings and slippage and $6,000,000 reprogrammed to the project.

1001

Lower Granite Lock & Dam
- Extended Screens
- Fish Loading Improvements
- Barge Moorage Expansion
- Fish Transportation Barges
- Bypass Channel Improvement
- Surface Bypass Facilities

Little Goose Lock & Dam
- Extended Screens
- Holding and Loading Facility
- Surface Bypass Facilities

Lower Monumental Lock & Dam
- Screened Bypass
- Holding and Loading Facility
- Surface Bypass Facilities

Ice Harbor Lock & Dam
- Screened Bypass
- Spillway Flow Deflectors for Gas Abatement
- Surface Bypass Facilities

McNary Lock & Dam
- Extended Screens
- Holding & Loading Improvements

John Day Lock & Dam
- Juvenile Fish Monitoring Facilities
- Spillway Flow Deflectors for Gas Abatement
- Extended Screens

The Dalles Lock & Dam
- Extended Screen Bypass

Bonneville Lock and Dam
- Bypass Channel Improvements Including Outfall Relocation
- Independent Station Service
- Juvenile Fish Monitoring Facilities

Mitigation Analysis
- Phase One System Configuration Report
- Surface Bypass
- Drawdown of Lower Snake Reservoirs
- John Day Fall Chinook Hatchery Mitigation Study
- Upstream Storage
- Turbine Passage
- Gas Abatement
- Light and Sound Guidance
- Adult Passage
- Short Hauling of Juvenile Fish
- Baseline and Miscellaneous Studies

JUSTIFICATION: Columbia River Fish Mitigation provides mitigation for the impact of Corps dams on migrating salmon. Completed and scheduled mitigation measures are based on analyses completed to date. Mitigation measures are being considered as a result of the Northwest Power Planning Council's regional rebuilding efforts for upriver salmon stocks, the NMFS listing of Snake River salmon as threatened/endangered, and the NMFS Biological Opinion on operation of the FCRPS issued on March 2, 1995. The current scope of this project has been adjusted to be in accord with the Biological Opinion. The Mitigation Analysis, begun in FY 1991, is contributing to a regionally cooperative process for analyzing potential new measures.

FISCAL YEAR 1997: The requested amount of $107,000,000 will be applied as follows:

Lower Granite	$6,595,000
Initiate Channel Bypass Improvements	
Initiate Fish Transport Barge Construction	
Little Goose	1,176,000
Juvenile Bypass Outfall	
Lower Monumental	1,300,000
Complete Gate Raise Modifications	
Modify Gantry Crane	
Ice Harbor	6,500,000
Initiate Spillway Flow Deflector Construction	
McNary	5,159,000
Complete Extended Screen Construction	
John Day	$15,549,000
Continue Construction of Juvenile Fish Monitoring facilities	
Initiate Spillway Flow Deflector Construction	
Bonneville	5,200,000
Bypass Channel Improvements	
Continue Smolt Monitoring Design	
Mitigation Analysis	$ 65,521,000
Continue Studies: Surface Bypass, Drawdown of Lower Snake Reservoirs, John Day Hatchery Mitigation Study, Turbine Passage, Gas Abatement, Light and Sound Guidance, Adult Passage, Baseline and Miscellaneous Studies	
Total	$ 107,000,000

NON-FEDERAL COST: Costs eventually determined to be allocable to power are reimbursable. The dams being modified and analyzed are a part of the Federal Columbia River Power System. Bonneville Power Administration (BPA), the Federal marketing agency, establishes system rate levels adequate to recover all capital investment costs for generating projects (including Corps generating projects) within a 50-year period and to repay annual OM&R and interest expenses. BPA submits an annual financial statement to Congress, as required by law, on repayment and periodically recommends rate adjustments as required for meeting repayment obligations.

Division: North Pacific District: Walla Walla/Portland Columbia River Fish Mitigation Washington, Oregon and Idaho

STATUS OF LOCAL COOPERATION: None required.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal (C of E) cost estimate of $1,382,217,000 is an increase of $ 798,617,000 from the estimate ($583,600,000) presented to Congress (Fiscal Year 1996) on 6 February 1995. This change is primarily due to the addition of mitigation measures called for in the NMFS Biological Opinion issued on 2 March 1995. This total estimate is significantly higher than the previous amount because very preliminary estimates for future potential measures, now under study, have been added in an attempt to present an approximate ultimate cost estimate. This change includes the following items:

Added Mitigation Measures

Lower Granite:	
Barges for Fish Transport	$ 22,200,000
Bypass Channel Improvements	16,400,000
Fish Ladder Temp Control & Misc	647,000
Surface Bypass	101,000,000
Little Goose:	
Fish Ladder Temp Control & Misc	1,279,000
Surface Bypass	101,000,000
Lower Monumental:	
Fish Ladder Temp Control & Misc	1,824,000
Surface Bypass	101,000,000
Ice Harbor:	
Pier Wall Extension	2,300,000
Spillway Flow Deflectors for Gas Abatement	7,500,000
Fish Ladder Temp Control & Misc	2,709,000
Surface Bypass	101,000,000
McNary:	
Bypass System Improvements	3,143,000
John Day:	
Spillway Flow Deflectors for Gas Abatement	13,600,000
Extended Screens	32,000,000
Juvenile Fish Monitoring Facilities	12,400,000
The Dalles:	
Bypass System Improvements	1,600,000
Bonneville:	
Bypass System Improvements	77,700,000
Independent Station Service & Misc	2,417,000
Mitigation Analysis:	196,898,000
. Expanded Surface Bypass Evaluation and Prototype	
. System Dissolved Gas Abatement Evaluation and Prototype	
. Other Passage Technology Evaluation and Testing	
Total Cost Changes	$ 798,617,000

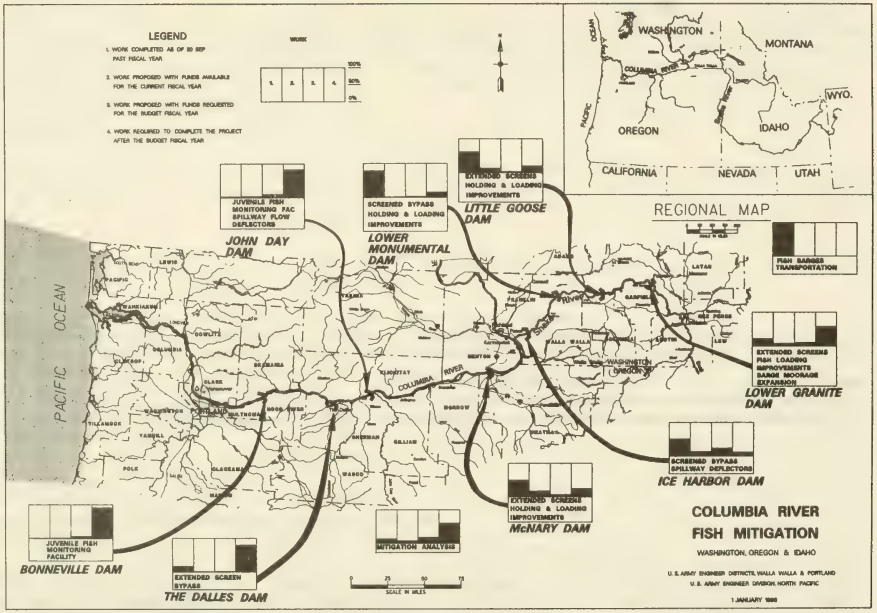
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: Mitigation construction is generally covered by existing environmental impact statements. Additional Environmental documentation pursuant to NEPA will be accomplished as necessary. Consultations with the National Marine Fisheries Service will be held and biological assessments prepared as necessary to conform with requirements NEPA and of the Endangered Species Act (ESA).

OTHER INFORMATION:

Initial Construction Date
Funds to initiate construction were appropriated in Fiscal Year 1988.

Scheduled Completion Dates
The completion schedule is being determined.

Potential Future Changes
Salmon rebuilding initiatives for Corps implementation have been adopted by the Northwest Power Planning Council as a part of its amended Columbia River Basin Fish and Wildlife Program. NMFS is currently developing a recovery plan required under ESA for listed Snake River salmon stocks. These developments may affect Corps actions and future budget requirements. In the Budget Year there is potential for adjustments in measures and activities based on results of current year research and development, and monitoring and evaluation. This adaptive management approach is regionally recognized and accepted. The Corps will continue to coordinate all of its fish mitigation project activities with regional entities as final and specific plans and priorities in FY 97 are determined.



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1006

APPROPRIATION TITLE: Construction, General - Multiple Purpose Power

PROJECT: Lower Snake River Fish and Wildlife Compensation, Washington, Oregon, Idaho, (Continuing)

LOCATION: Hatchery sites are located at McCall, Idaho, about 1,500 feet downstream from Payette Lake; Lyons Ferry, Washington, at River Mile 59 on the Snake River; Lookingglass, Oregon, about 10 miles northwest of Elgin, Oregon; Hagerman, Idaho, 10 miles west of Twin Falls, Idaho; Irrigon Hatchery, about 10 miles west of Umatilla, Oregon; Dworshak Expansion, Sawtooth Hatchery about 5 miles south of Stanley, Idaho; Magic Valley Hatchery about 4 miles north of Buhl, Idaho; and Clearwater Hatchery about 5 miles west of Orofino, Idaho. Fishing and hunting access and wildlife habitat lands will be located in Washington and Idaho.

DESCRIPTION: The project consists of a number of Chinook and Steelhead hatcheries that will provide 27,000,000 juvenile salmon and steelhead annually. These fish will be released in streams for migration to the Pacific Ocean. Adult salmon and steelhead resulting from these releases will provide both sport and commercial fishing opportunities with over 4 million pounds of fish going to the commercial fisheries and providing approximately 689,000 additional angler days of sport fishing. An estimated 132,000 adult fish will return to the project area of the Snake River. In addition to the anadromous fish, 93,000 pounds of trout will be reared and released in Eastern Washington which will provide 45,000 additional angler days of sport fishing. There will be an aggregate of 24,150 acres in fee or easement for fisherman access, wildlife habitat and hunting access. Additionally, a program has been implemented with Washington State Department of Game to produce the equivalent of 20,000 game birds per year for 20 years.

AUTHORIZATION: Water Resources Development Act of 1976 as modified by the Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: Not Applicable.[1]

TOTAL BENEFIT-COST RATIO: Not Applicable.[1]

INITIAL BENEFIT-COST RATIO: Not Applicable.[1]

BASIS OF BENEFIT COST RATIO: Not Applicable.[1]

[1] Mitigation is incrementally justified through consideration of costs and non-monetary benefits; accordingly, a benefit-cost ratio is not computed.

SUMMARIZED FINANCIAL DATA

Estimated Total Appropriation Requirement		$ 232,000,000
Future Non-Federal Reimbursement		194,416,000
Estimated Federal Cost (Ultimate)		37,584,000
Estimated Non-Federal Cost		194,639,000
Cash Contributions	$ 223,000	
Reimbursements	194,416,000	
Power	$ 194,416,000	
Total Estimated Project Cost		232,223,000 2/
Allocations to 30 Sep 1995		214,293,000
Conference Allowance for FY 1996		8,000,000
Allocation for FY 1996		6,517,000 3/
Allocations through FY 1996		220,810,000
Allocation Requested for FY 1997		3,600,000
Programmed Balance to Complete after FY 1997		7,590,000
Unprogrammed Balance to Complete after FY 1997		0

STATUS: (1 Jan 96)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	N/A 4/	Being Determined
Wildlife Compensation Facilities	69	Being Determined
Fish Facility	N/A 4/	Being Determined
Lands	100	Sep 94

	ACCUM. PCT. OF EST. FED COST
Allocations to 30 Sep 1995	95
Allocations through FY 1996	97

2/ Includes $5,000,000 for additional hatchery facilities from FY 95 appropriations. However, the cost estimate is not yet available for this additional work.
3/ Reflects $663,000 reduction assigned as savings and slippage and $820,000 reprogrammed from the project.
4/ Percent complete is not available pending preparation of an cost estimate for the additional hatchery facilities included in the FY 1995 appropriations; however, the remainder of the fish facilities are essentially complete.

PHYSICAL DATA

Capacity of Hatcheries
9,160,000 Fall Chinook Smolts - 101,800 lbs.
6,750,000 Spring and Summer Chinook Smolts - 450,000 lbs.
11,020,000 Summer Steelhead - 1,377,500 lbs.
93,000 lbs. of Resident Sport Fishery

Acquisition of 24,150 acres for fisherman access and wildlife compensation and improvement of land for wildlife compensation.

Division: North Pacific

District: Walla Walla

Lower Snake River Fish and Wildlife Compensation, Washington, Oregon, Idaho

JUSTIFICATION: The Lower Snake River Fish and Wildlife project will provide compensation for the losses to fish and wildlife resources that were caused by the construction and operation of the four Lower Snake River dam projects (Ice Harbor, Lower Monumental, Little Goose, and Lower Granite).

FISCAL YEAR 1997: The requested amount of $3,600,000 will be applied as follows:

Continue Clearwater Fish Hatchery completion work	$ 375,000
Continue Adult Trapping Facilities (upper Grande Ronde and Catherine Creek)	140,000
Continue Final Rearing/Acclimation Facilties (Clearwater, Snake and Lower Grande Ronde)	2,400,000
Continue Wildlife Compensation Facilties	685,000
Total	$ 3,600,000

NON-FEDERAL COSTS: Costs allocable to power presently estimated at $194,416,000 are reimbursable. This project is a part of the Federal Columbia River Power System. Bonneville Power Administration (BPA), the Federal marketing agency, establishes system rate levels adequate to recover all capital investment costs for generating projects (including Corps generating projects) within a 50-year period and to repay annual OM&R and interest expenses. BPA submits an annual financial statement to Congress, as required by law, on repayment and periodically recommends rate adjustments as required for meeting repayment obligations. In addition, a cash contribution to expand the Lyons Ferry Hatchery ($223,000) has been furnished.

STATUS OF LOCAL COOPERATION: None required for construction.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $232,000,000 is the same presented to Congress (FY 1996).

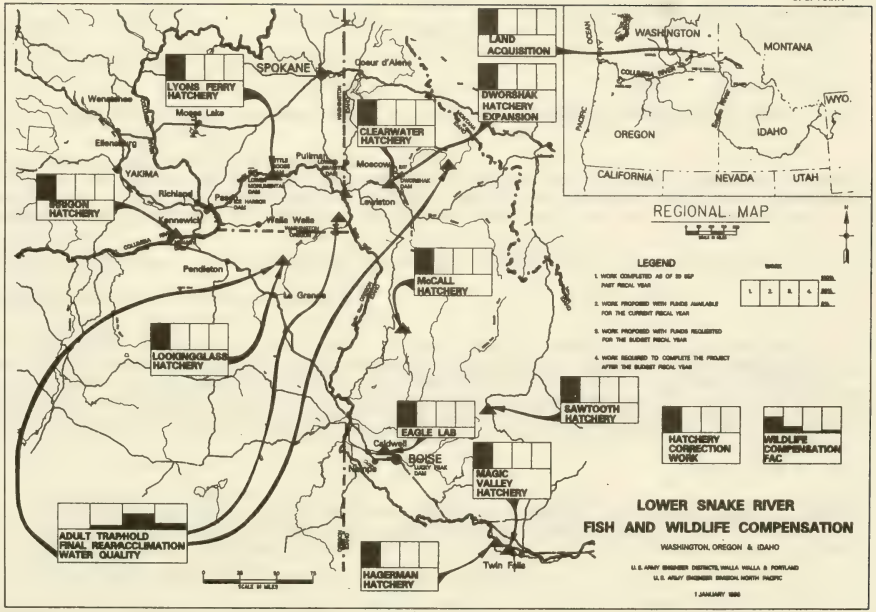
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 29 October 1977. Additional Environmental documentation pursuant to NEPA will be accomplished as necessary. Consultations with the National Marine Fisheries Service will be held and biological assessments prepared as necessary to conform with requirements of the Endangered Species Act.

OTHER INFORMATION:
Funds to initiate preconstruction planning were appropriated in Fiscal Year 1978 and for Construction in Fiscal Year 1979.

The scheduled project completion date is being determined.

CORPS OF ENGINEERS

U. S. ARMY



18 MAR 1996

82

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APPROPRIATION TITLE: Construction, General (Major Rehabilitation on Multiple-Purpose Power Projects)

PROJECT: Bonneville Powerhouse (Phase I - Transformers/Switchyard), Oregon and Washington (Continuing)

LOCATION: On the Columbia River 42 miles east of Portland, Oregon, along Interstate 84, between the states of Oregon and Washington.

DESCRIPTION: Replacement of transformers for 10 generating units and rehabilitation of switchyard.

AUTHORIZATION: National Recovery Act, 30 September 1933; River and Harbor Act, 74th Congress, 2nd Session, 30 August 1935; Public Law 329, 75th Congress, 20 August 1937 (Existing Project).

REMAINING BENEFIT - REMAINING COST RATIO: Not Applicable. The work is undertaken for system reliability, safety and environmental reasons.

TOTAL BENEFIT - COST RATIO: Not Applicable. The work is undertaken for system reliability, safety and environmental reasons.

INITIAL BENEFIT - COST RATIO: Not Applicable. The work is undertaken for system reliability, safety and environmental reasons.

BASIS OF BENEFIT - COST RATIO: Not Applicable.

SUMMARIZED FINANCIAL DATA		
Estimated Appropriation Requirement		$24,040,000
Future Non-Federal Reimbursement		$24,040,000
Estimated Federal Cost (Ultimate)		0
Estimated Non-Federal Cost		$24,040,000
Reimbursements	$24,040,000	
Power	$24,040,000	
Total Estimated Project Cost		$24,040,000

STATUS (1 JAN 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	85	Mar 1997

1011

SUMMARIZED FINANCIAL DATA (Cont'd)

		Accum.% of Est Federal Cost
Allocations to 30 September 1995	$20,227,000	
Conference Allowance for FY 1996	8,530,000	
Allocation for FY 1996	3,313,000 1/	
Allocations through FY 1996	23,540,000	98
Allocation Requested for FY 1997	500,000	100
Programmed Balance to Complete after FY 1997	0	
Unprogrammed Balance to Complete after FY 1997	0	

PHYSICAL DATA (EXISTING PROJECT)

Powerhouse: Number of generating units - 10
Total plant capacity - 531,630 kw

1/ Reflects $707,000 reduction assigned as savings and slippage and $4,510,000 reprogrammed from the project.

JUSTIFICATION: The Bonneville Powerhouse was dedicated on 28 September 1937. This powerhouse was the first of several multi-unit powerhouses constructed by the Corps of Engineers on the Columbia River System. It serves as an integral part of the Northwest Power Pool Transmission Grid and contributes nearly 5% of the total Corps of Engineer's output to the Bonneville Power Administration's (BPA) transmission System. The plant has ten Kaplan type main unit turbines, with a total rated capacity of 531,630 kW. The original design of the plant was primarily for base load operation. The plant is presently used both as a base load and peaking plant, and plays a key role in BPA's transmission system voltage regulation scheme for the greater Portland, Oregon area. The powerplant requires frequent and complex maintenance, resulting in increased maintenance costs and, more importantly, lost generating capability through unscheduled equipment outages. This can be partially attributed to the current operation of the powerhouse for peaking, rather than base load operation, which is beyond the conditions for which the equipment was designed to operate. Two main unit transformers have failed within the last five years. There are no remaining spares. Five different types of transformers of different vintage and manufacture are presently in use, which increases the difficulty of maintenance, reduces the ability to interchange spare parts, and reduces plant versatility during the occurrence of failures. Also, oil circuit breaker bushings have been found to have extremely high concentrations of PCB's. Two bushings have exploded, which posed a threat to the Columbia River but fortunately caused no injuries.

1012

FISCAL YEAR 1997: The requested amount of $500,000 will be applied as follows:

Complete Powerhouse Rehabilitation	$ 213,000
Engineering and Design	103,000
Construction Management	154,000
Contingency	30,000
Total	$ 500,000

STATUS OF LOCAL COOPERATION: None required for major rehabilitation.

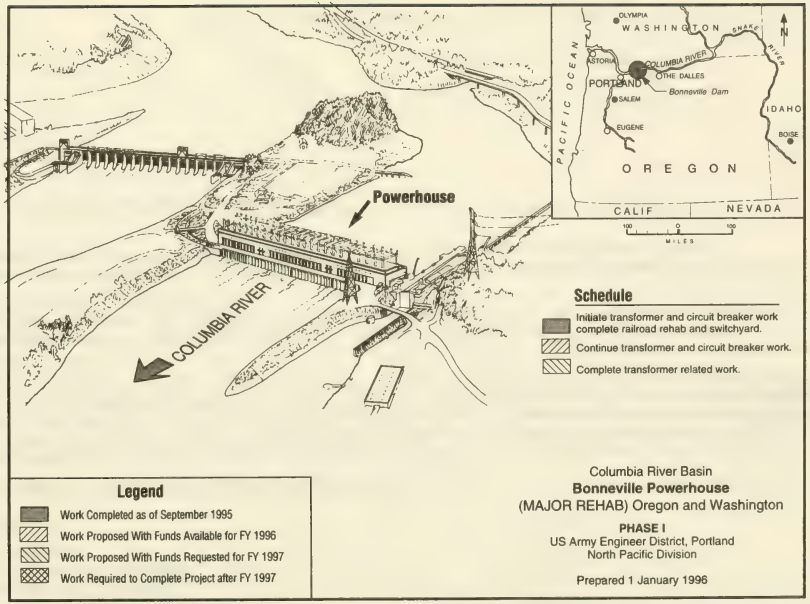
NON-FEDERAL COST: Costs allocated to power, presently estimated at $24,040,000, are reimbursable. This project is a part of the Federal Columbia River power system. Bonneville Power Administration (BPA), the federal marketing agency, establishes system rate levels adequate to recover all capital investment cost for generating projects (including Corps generating projects) within 50-year period and to repay annual OM&R and interest expenses. BPA submits annual financial statements to Congress, as required by law, on repayment and periodically recommends rate adjustment as required for meeting repayment obligations.

COMPARISON OF FEDERAL COST ESTIMATE: The current federal cost estimate of $24,040,000 reflects a reduction of $3,060,000 from the previous estimate ($27,100,0000) presented to Congress (FY 1996). The cost reduction is due to savings related to acceleration of work in FY 1995.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment (EA) and a Finding of No Significant Impact (FONSI) was finalized on 19 August 1991 for the Bonneville Powerhouse, Major Rehabilitation (Phase I) work.

OTHER INFORMATION:
Initial construction of the powerhouse was completed in 1943.

1013



18 MAR 1996

86

APPROPRIATION TITLE: Construction, General (Major Rehabilitation on Multiple-Purpose Power Projects)

PROJECT: Bonneville Powerhouse (Phase II - Main Unit), Oregon and Washington (Continuing)

LOCATION: On the Columbia River 42 miles east of Portland, Oregon, along Interstate 84, between the states of Oregon and Washington.

DESCRIPTION: Replace the windings of five generators and replacement of ten turbines for the generating units.

AUTHORIZATION: National Recovery Act, 30 September 1933; River and Harbor Act, 74th Congress, 2nd Session, 30 August 1935; Public Law 329, 75th Congress, 20 August 1937 (Existing Project).

REMAINING BENEFIT - REMAINING COST RATIO: 1.89 to 1 at 7.75 percent

TOTAL BENEFIT - COST RATIO: 1.72 to 1 at 8.0 percent

INITIAL BENEFIT - COST RATIO: 1.5 to 1 at 8-1/2 percent

BASIS OF BENEFIT - COST RATIO: Benefits are from the Evaluation Report submitted 15 March 1992 at March 1992 price levels.

SUMMARIZED FINANCIAL DATA		STATUS (1 JAN 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Appropriation Requirement	$89,100,000			
Future Non-Federal Reimbursement	$89,100,000			
Estimated Federal Cost (Ultimate)	0	Entire Project	2	Being Determined
Estimated Non-Federal Cost	$89,100,000			
Reimbursements $89,100,000				
Power $89,100,000				
Total Estimated Project Cost	$89,100,000			

SUMMARIZED FINANCIAL DATA (Cont'd)

		Accum.% of Est Federal Cost
Allocations to 30 September 1995	$ 1,423,000	
Conference Allowance for FY 1996	7,000,000	
Allocation for FY 1996	4,446,000 1/	
Allocations through FY 1996	5,869,000	7
Allocation Requested for FY 1997	6,600,000	14%
Programmed Balance to Complete after FY 1997	76,631,000	
Unprogrammed Balance to Complete after FY 1997	0	

PHYSICAL DATA (EXISTING PROJECT)

Powerhouse: Number of generating units - 10

Total plant capacity - 531,630 kw

1/ Reflects $580,000 reduction assigned as savings and slippage, and $1,974,000 reprogrammed from the project.

JUSTIFICATION: The Bonneville Powerhouse was the first of several multi-unit powerhouses constructed by the Corps of Engineers on the Columbia River System. It serves as an integral part of the Northwest Power Pool Transmission Grid and contributes nearly 5% of the total Corps output to the Department of Energy's (Bonneville Power Administration) transmission System. The plant has ten Kaplan type main unit turbines, with a total rated capacity of 531,630 kW. The original design of the plant was primarily for base load operation. The plant is presently used both as a base load and peaking plant. Current operation of the plant for peaking as well as balancing regional power load variations requires rapid control of generating units to compensate for changing load and voltage conditions. This imposes increased stress on the generating/power train components contributing to the most recent failures (specifically winding coil and blade failures). Moreover, the main operational constraints imposed to enhance fish migration result in more numerous unit starts and stops. Tests conducted by both BPA and the Corps indicate slow voltage and system load restoration response. This work will increase the overall reliability and efficiency power generation of the powerhouse, and enhance downstream juvenile fish survival due to increased turbine efficiency. The power plant requires frequent and complex maintenance, resulting in increased maintenance costs and, more importantly, lost generating capability through unscheduled equipment outages. Five units have experienced winding failures and three units are currently operating at slightly reduced capacity because of coil failures. Also to be considered is the role which the Second Powerhouse plays in the operation of the first Powerhouse. Since 1983, operation of the Second Powerhouse has been restricted during juvenile fish migration periods (15 March through 15 November). Operation during this period has been as necessary to meet Firm Energy Carrying Capabilities, to conduct ongoing research, control total dissolved gas, or to maintain spill at or below 75,000 cfs during daylight hours. Total average annual benefits are estimated to be $9,897,000.

FISCAL YEAR 1997: The requested amount of $6,600,000, will be applied as follows:

Continue Powerhouse Rehabilitation	$5,523,000
Engineering and Design	297,000
Construction Management	780,000
Total	$6,600,000

STATUS OF LOCAL COOPERATION: None required for major rehabilitation.

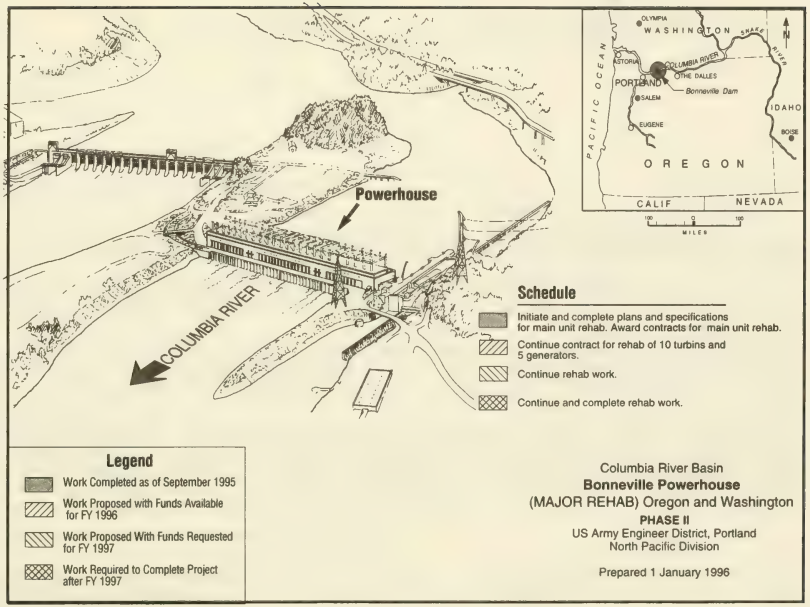
NON-FEDERAL COSTS: Costs allocated to power, presently estimated at $89,100,000, are reimbursable. This project is a part of the Federal Columbia River power system. Bonneville Power Administration (BPA) the federal marketing agency, establishes system rate levels adequate to recover all capital investment cost for generating projects (including Corps generating projects) within 50-year period and to repay annual OM&R and interest expenses. BPA submits annual financial statements to Congress, as required by law, on repayment and periodically recommends rate adjustment as required for meeting repayment obligations.

COMPARISON OF FEDERAL COST ESTIMATE: The current federal cost estimate of $89,100,000 is an increase of $2,700,000 from the latest estimate ($86,400,000) presented to Congress (FY 1996). This change is primarily due to additional costs for the manufacture and installation of fish friendly turbines and additional post-construction testing of the turbines for fish survival.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment (EA) and a Finding of No Significant Impact (FONSI) was finalized on 6 March 1992 for the Bonneville Powerhouse, Major Rehabilitation (Phase II) work.

OTHER INFORMATION: For all ten replacement turbines, the contractor has been requested to manufacture and install fish friendly turbines. Model tests indicate the result will be less mechanical injury to fish and an increase in efficiency.

Initial construction of the powerhouse was completed in 1943.


Powerhouse
COLUMBIA RIVER
OLYMPIA
WASHINGTON
SNAKE RIVER
ASTORIA
COLUMBIA RIVER
THE DALLES
PORTLAND
Bonneville Dam
SALEM
EUGENE
PACIFIC OCEAN
IDAHO
BOISE
OREGON
CALIF
NEVADA
100 0 100
MILES
N
Schedule
Initiate and complete plans and specifications for main unit rehab. Award contracts for main unit rehab.
Continue contract for rehab of 10 turbins and 5 generators.
Continue rehab work.
Continue and complete rehab work.
Legend
Work Completed as of September 1995
Work Proposed with Funds Available for FY 1996
Work Proposed With Funds Requested for FY 1997
Work Required to Complete Project after FY 1997
Columbia River Basin
Bonneville Powerhouse
(MAJOR REHAB) Oregon and Washington
PHASE II
US Army Engineer District, Portland
North Pacific Division
Prepared 1 January 1996

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. NAVIGATION.

a. Channels and Harbors.

The program request of $47,698,000 provides for essential maintenance work on 36 channel and harbor projects named in the list which follows. The work to be accomplished under this activity consists of maintaining the navigation channels and basins of coastal harbors by means of dredging, removal of navigation obstructions, and repair of navigation structures, as authorized in the laws adopting river and harbor projects.

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	EXPLANATION OF MAJOR CHANGES 1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
ALASKA			
Anchorage Harbor	1,328,000 (0) (1,328,000)	1,200,000 (0) (1,200,000)	1. None. 2. Dredging.
Bethel Harbor	0 (0) (0)	325,000 (0) (325,000)	1. None. 2. None.
Cresent Bay Harbor, Sitka	0 (0) (0)	70,000 (0) (70,000)	1. None. 2. None.
Dillingham Harbor	382,000 (0) (382,000)	551,000 (0) (551,000)	1. None. 2. Dredging.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. NAVIGATION. (continued)

a. Channels and Harbors. (continued)

State Project Name	OBLIGATIONS Estimated FY 1996 ($)	Estimated FY 1997 ($)	EXPLANATION OF MAJOR CHANGES
	Total (Operations) (Maintenance)	Total (Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
ALASKA (continued)			
Douglas Harbor	0	396,000	
	(0)	(0)	1. None.
	(0)	(396,000)	2. None.
Dry Pass	0	345,000	
	(0)	(0)	1. None.
	(0)	(345,000)	2. None.
Homer Harbor	193,000	233,000	
	(0)	(0)	1. None.
	(193,000)	(233,000)	2. None.
Ninilchik Harbor	182,000	181,000	
	(0)	(0)	1. None.
	(182,000)	(181,000)	2. None.
Nome Harbor	494,000	260,000	
	(0)	(0)	1. None.
	(494,000)	(260,000)	2. None.

1020

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. NAVIGATION. (continued)

a. Channels and Harbors. (continued)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	EXPLANATION OF MAJOR CHANGES 1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
OREGON			
Chetco River	538,000	530,000	
	(22,000)	(24,000)	1. None.
	(516,000)	(506,000)	2. Dredging.
Columbia and Lower Willamette Rivers below Vancouver, WA and Portland, OR	11,686,000	11,739,000	
	(2,037,000)	(1,519,000)	1. Decreased activities for dredged material management plan FY 97.
	(9,649,000)	(10,220,000)	2. Dredging.
Columbia River at the Mouth	8,258,000	8,021,000	
	(54,000)	(56,000)	1. None.
	(8,204,000)	(7,965,000)	2. Dredging.
Columbia River between Vancouver, WA and The Dalles, OR	341,000	344,000	
	(151,000)	(66,000)	1. Sediment quality evaluation FY 96.
	(190,000)	(273,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. NAVIGATION. (continued)

a. Channels and Harbors. (continued)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	EXPLANATION OF MAJOR CHANGES 1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
OREGON (Continued)			
Coos Bay	2,840,000 (105,000) (2,735,000)	4,433,000 (103,000) (4,330,000)	1. None. 2. Dredging.
Coquille River	472,000 (14,000) (458,000)	559,000 (14,000) (545,000)	1. None. 2. Dredging.
Depoe Bay	9,000 (9,000) (0)	3,000 (3,000) (0)	1. Increased real estate activities FY 96. 2. None.
Port Orford	440,000 (27,000) (413,000)	396,000 (17,000) (379,000)	1. Preliminary dredge material management evaluation FY 96. 2. None.
Rogue River	1,340,000 (14,000) (1,326,000)	1,153,000 (59,000) (1,094,000)	1. Sediment quality evaluation FY 97. 2. Dredging.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. NAVIGATION. (continued)

a. Channels and Harbors. (continued)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	EXPLANATION OF MAJOR CHANGES 1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
OREGON (Continued)			
Siuslaw River	740,000	753,000	
	(97,000)	(81,000)	1. Sediment quality evaluation FY 96.
	(643,000)	(672,000)	2. Dredging.
Skipanon Channel	64,000	17,000	
	(64,000)	(17,000)	1. Sediment quality evaluations FY 96.
	(0)	(0)	2. None.
Tillamook Bay and Bar	14,000	13,000	
	(14,000)	(13,000)	1. None.
	(0)	(0)	2. None.
Umpqua River	1,120,000	1,228,000	
	(67,000)	(107,000)	1. Increased hydrographic surveys FY 97.
	(1,053,000)	(1,121,000)	2. Dredging.
Yaquina Bay and Harbor	1,701,000	2,192,000	
	(63,000)	(101,000)	1. Ocean disposal site evaluation FY 97.
	(1,638,000)	(2,091,000)	2. Dredging.

23-577 96 - 33

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. NAVIGATION. (continued)

a. Channels and Harbors. (continued)

State Project Name	OBLIGATIONS Estimated FY 1996 ($)	Estimated FY 1997 ($)	EXPLANATION OF MAJOR CHANGES
	Total (Operations) (Maintenance)	Total (Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
WASHINGTON			
Columbia River at Baker Bay	26,000 (26,000) (0)	44,000 (44,000) (0)	1. Sediment quality evaluation FY 97. 2. None.
Columbia River between Chniook and Sand Island	1,246,000 (7,000) (1,239,000)	38,000 (38,000) (0)	1. Sediment quality evaluation FY 97. 2. None.
Ediz Hook	0 (0) (0)	746,000 (0) (746,000)	1. None. 2. Nourishment of spit revetment FY 97.
Everett Harbor and Snohomish River	1,170,000 (55,000) (1,115,000)	853,000 (54,000) (799,000)	1. None. 2. Dredging.
Friday Harbor	25,000 (25,000) (0)	52,000 (0) (52,000)	1. Engineering FY 96. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. NAVIGATION. (continued)

a. Channels and Harbors. (continued)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	EXPLANATION OF MAJOR CHANGES 1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
WASHINGTON (Continued)			
Grays Harbor and Chehalis River	7,649,000	7,479,000	
	(30,000)	(675,000)	1. Hydrographic surveys FY 97.
	(7,619,000)	(6,804,000)	2. Dredging.
Lake Crockett (Keystone Harbor)	4,000	34,000	
	(4,000)	(34,000)	1. Hydrographic surveys FY 97.
	(0)	(0)	2. None.
Olympia Harbor	13,000	9,000	
	(13,000)	(0)	1. Breakwater inspection FY 96.
	(0)	(9,000)	2. None.
Puget Sound and Its Tributary Waters	1,161,000	1,100,000	
	(0)	(0)	1. None.
	(1,161,000)	(1,100,000)	2. Debris removal.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. NAVIGATION. (continued)

a. Channels and Harbors. (continued)

State Project Name	OBLIGATIONS Estimated FY 1996 ($)	Estimated FY 1997 ($)	EXPLANATION OF MAJOR CHANGES
	Total (Operations) (Maintenance)	Total (Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
WASHINGTON (Continued)			
Quillayute River	1,522,000 (0) (1,522,000)	769,000 (50,000) (719,000)	1. Hydrographic surveys FY 97. 2. Dredging. The above amounts for Quillayute River in FY 96 and FY 97 represent normal O&M activities that were budgeted for this project. Thus, actions to correct recent February 1996 flood damage to this project, which now prevents operations, are not reflected in the above numbers. Preliminary survey assessment is being done.
Seattle Harbor	691,000 (0) (691,000)	265,000 (20,000) (245,000)	1. Hydrographic surveys FY 97. 2. None.
Swinomish Channel	2,000 (2,000) (0)	365,000 (52,000) (313,000)	1. Hydrographic surveys FY 97. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. NAVIGATION. (continued)

a. Channels and Harbors. (continued)

State Project Name	OBLIGATIONS Estimated FY 1996 ($)	Estimated FY 1997 ($)	EXPLANATION OF MAJOR CHANGES
	Total (Operations) (Maintenance)	Total (Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
WASHINGTON (Continued)			
Willapa River and Harbor	427,000	1,002,000	
	(0)	(102,000)	1. Hydrographic surveys FY 97.
	(427,000)	(900,000)	2. None.
Other Projects Maintained Periodically	1,948,000	0	
	(0)	(0)	1. None.
	(1,948,000)	(0)	2. None.
TOTAL - CHANNELS AND HARBORS	48,026,000	47,698,000	
	(2,900,000)	(3,778,000)	
	(45,126,000)	(43,920,000)	

1027

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. NAVIGATION. (continued)

b. Locks and Dams. The program request of $8,034,000 provides the amount for operational requirements of two projects. Annual requirements are for operation and ordinary maintenance of project facilities; labor, supplies, materials and parts required for the day-to-day functioning of projects; and periodic maintenance, repairs, replacement and modernization.

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	EXPLANATION OF MAJOR CHANGES 1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
OREGON			
Willamette River at Willamette Falls	853,000 (460,000) (393,000)	1,201,000 (488,000) (713,000)	1. None. 2. Repair lockgates 5 & 6.
WASHINGTON			
Lake Washington Ship Canal	6,023,000 (3,176,000) (2,847,000)	6,833,000 (3,357,000) (3,476,000)	1. None. 2. Provide maintenance of lock and control structure. Provide maintenance of buildings, grounds and utilities. Rehabitation of large lock machinery.
TOTAL - LOCKS AND DAMS	6,876,000 (3,635,000) (3,241,000)	8,034,000 (3,845,000) (4,189,000)	
TOTAL - NAVIGATION	54,902,000 (6,537,000) (48,365,000)	55,732,000 (7,623,000) (48,109,000)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. FLOOD CONTROL.

a. Reservoirs. The program request of $11,993,000 for the operation and maintenance of 12 flood control reservoirs, including essential repair work and scheduling of flood control reservoir operations within the Division provides the amount for operational requirements. Annual requirements are for operation and ordinary maintenance of project facilities; labor, supplies, material and parts required for day-by-day functioning of projects; periodic maintenance, repairs, and replacements; and contract law enforcement. The requested amount also includes application of special recreation use fees for recreation areas.

State Project Name	OBLIGATIONS Estimated FY 1996 ($)	Estimated FY 1997 ($)	EXPLANATION OF MAJOR CHANGES
	Total (Operations) (Maintenance)	Total (Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
ALASKA			
Chena River Lakes	1,595,000	1,726,000	
	(1,081,000)	(1,102,000)	1. None.
	(514,000)	(624,000)	2. None.
IDAHO			
Lucky Peak Lake	1,056,000	1,151,000	
	(739,000)	(812,000)	1. None.
	(317,000)	(339,000)	2. None.
OREGON			
Applegate Lake	661,000	699,000	
	(569,000)	(611,000)	1. None.
	(92,000)	(88,000)	2. None.
Blue River Lake	441,000	273,000	
	(398,000)	(241,000)	1. Seismic reevaluation study FY 96.
	(43,000)	(32,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. FLOOD CONTROL. (Continued)

a. Reservoirs. (Continued)

State Project Name	OBLIGATIONS Estimated FY 1996 ($)	Estimated FY 1997 ($)	EXPLANATION OF MAJOR CHANGES
	Total (Operations) (Maintenance)	Total (Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
OREGON (Continued)			
Cottage Grove Lake	698,000	756,000	
	(504,000)	(543,000)	1. None.
	(194,000)	(213,000)	2. None.
Dorena Lake	560,000	597,000	
	(361,000)	(382,000)	1. None.
	(199,000)	(215,000)	2. None.
Fall Creek Lake	543,000	551,000	
	(405,000)	(403,000)	1. None.
	(138,000)	(148,000)	2. None.
Fern Ridge Lake	903,000	964,000	
	(565,000)	(603,000)	1. None.
	(338,000)	(361,000)	2. None.
Willow Creek Lake	474,000	603,000	
	(388,000)	(505,000)	1. Increased water quality activities FY 97.
	(86,000)	(98,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. FLOOD CONTROL. (Continued)

a. Reservoirs. (Continued)

State Project Name	OBLIGATIONS Estimated FY 1996 ($)	Estimated FY 1997 ($)	EXPLANATION OF MAJOR CHANGES
	Total (Operations) (Maintenance)	Total (Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
WASHINGTON			
Howard A. Hanson Reservoir	1,103,000 (998,000) (105,000)	1,198,000 (938,000) (260,000)	1. None. 2. None.
Mill Creek, Virgil B. Bennington Lake	733,000 (478,000) (255,000)	737,000 (511,000) (226,000)	1. None. 2. None.
Mud Mountain Dam	1,765,000 (1,203,000) (562,000)	1,860,000 (1,221,000) (639,000)	1. None. 2. None.

1031

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. FLOOD CONTROL. (Continued)

a. Reservoirs. (Continued)

Scheduling Reservoir Operations

The $878,000 requested in FY 97 supports preparation, review and updating of water control manuals, real-time data collection to monitor hydrologic conditions, and the issuance of gate regulation instructions as necessary at non-Corps dam and reservoir projects at which the Corps is responsible for flood control or navigation.

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	EXPLANATION OF MAJOR CHANGES 1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Scheduled Reservor Operations	780,000	878,000	
State:			
Idaho	(243,000)	(272,000)	1. Increased operations FY 97.
Montana	(40,000)	(47,000)	1. Increased operations FY 97.
Oregon	(94,000)	(102,000)	1. Increased operations FY 97.
Washington	(371,000)	(421,000)	1. Increased operations FY 97.
Wyoming	(32,000)	(36,000)	1. Increased operations FY 97.
TOTAL - RESERVOIRS	11,312,000 (8,469,000) (2,843,000)	11,993,000 (8,750,000) (3,243,000)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. FLOOD CONTROL. (Continued)

b. Channel Improvements, Inspection and Miscellaneous Maintenance. The program request of $2,220,000 provides for the essential annual and periodic maintenance requirements of five flood control protection projects and inspection of completed works within the Division during the budget year.

State / Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	EXPLANATION OF MAJOR CHANGES 1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
OREGON			
Willamette River Basin Bank Protection	80,000	60,000	
	(80,000)	(60,000)	1. Decreased river bank inspections FY 97.
	(0)	(0)	2. None.
WASHINGTON			
Mt. St. Helens	432,000	414,000	
	(369,000)	(357,000)	1. None.
	(63,000)	(57,000)	2. None.
Stillaguamish River	167,000	185,000	
	(0)	(0)	1. None.
	(167,000)	(185,000)	2. None.
Tacoma, Puyallup River	54,000	66,000	
	(13,000)	(18,000)	1. Increased real estate activities FY 97.
	(41,000)	(48,000)	2. None.
WYOMING			
Jackson Hole Levees	943,000	1,041,000	
	(116,000)	(109,000)	1. None.
	(827,000)	(932,000)	2. Maintenance of levees.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. FLOOD CONTROL. (Continued)
b. Channel Improvements, Inspection and Miscellaneous Maintenance. (Continued)

Inspection of Completed Works

The $ 454,000 requested in FY 97 supports inspections at flood control projects constructed by the Corps and operated and maintained by non-Federal interests. The inspections are conducted to determine the extent of compliance with legal standards and to advise local interests, as necessary, of corrective measures required to ensure that project structures and facilities will continue to safely provide flood protection benefits. These projects consist of features such as channels, levees, flood walls, drainage structures and pumping plants.

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	EXPLANATION OF MAJOR CHANGES 1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Inspection of Completed Works	340,000	454,000	
State:			
Alaska	(21,000)	(24,000)	1. Increased inspections FY 97.
Idaho	(83,000)	(114,000)	1. Increased inspections FY 97.
Montana	(12,000)	(16,000)	1. Increased inspections FY 97.
Oregon	(140,000)	(184,000)	1. Increased inspections FY 97.
Washington	(84,000)	(116,000)	1. Increased inspections FY 97.
TOTAL - CHANNEL IMPROVEMENTS, INSPECTIONS AND MISCELLANEOUS	2,016,000 (918,000) (1,098,000)	2,220,000 (998,000) (1,222,000)	
TOTAL - FLOOD CONTROL	13,328,000 (9,387,000) (3,941,000)	14,213,000 (9,748,000) (4,465,000)	

NORTH PACIFIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

3. MULTIPLE PURPOSE POWER PROJECTS. The program request of $128,608,000 for the operation and maintenance of 18 multiple purpose projects provides the amount for operational requirements. Annual requirements are for operation and ordinary maintenance of project facilities; labor, supplies, materials and parts required for the day-by-day functioning of the projects; and periodic maintenance, repairs and replacements. The requested amount also includes application of special recreation use fees for recreation areas.

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	EXPLANATION OF MAJOR CHANGES 1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
IDAHO			
Albeni Falls Dam	4,542,000 (2,891,000) (1,651 000)	4,535,000 (2,927,000) (1,608,000)	1. None. 2. Provide scheduled powerplant maintenance.
Dworshak Dam and Reservoir	9,751,000 (4,959,000) (4,792,000)	7,939,000 (5,050,000) (2,889,000)	1. None. 2. Provide scheduled maintenance for powerhouse, dam, and the fish hatchery.
MONTANA			
Libby Dam, Lake Koocanusa	6,388,000 (3,172 000) (3,216,000)	8,127,000 (3,383,000) (4,744,000)	1. None. 2. Provide scheduled powerplant maintenance. Reroof powerhouse and maintain building roofs. Rehabilitate and paint selective withdrawal gates.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

3. MULTIPLE PURPOSE POWER PROJECTS. (Continued)

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	EXPLANATION OF MAJOR CHANGES 1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
OREGON			
Bonneville Lock and Dam	19,017,000	17,109,000	
	(7,614,000)	(8,107,000)	1. None.
	(11,403,000)	(9,002,000)	2. Provide scheduled maintenance for powerhouse and fish passage facilities.
Cougar Lake	1,252,000	1,466,000	
	(815,000)	(955,000)	1. Seismic reevaluation study FY 97.
	(437,000)	(511,000)	2. None.
Detroit Lake	2,101,000	2,217,000	
	(1,494,000)	(1,515 000)	1. None.
	(607,000)	(702,000)	2. None.
Green Peter-Foster Lakes	2,483,000	2,549,000	
	(1,693,000)	(1,835,000)	1. None.
	(790,000)	(714,000)	2. None.
Hills Creek Lake	729,000	764,000	
	(508,000)	(546,000)	1. None.
	(221,000)	(218,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

3. MULTIPLE PURPOSE POWER PROJECTS. (Continued)

State Project Name	OBLIGATIONS Estimated FY 1996 ($)	Estimated FY 1997 ($)	EXPLANATION OF MAJOR CHANGES
	Total (Operations) (Maintenance)	Total (Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
OREGON (continued)			
John Day Lock and Dam	15,512,000 (7,079,000) (8,433,000)	14,558,000 (7,235,000) (7,323,000)	1. None. 2. Maintain powerhouse, maintain fish passage facilities and complete major rehabilitation of the powerhouse. See justification sheets for major rehabilitation of the powerhouse.
Lookout Point Lake	5,211,000 (2,746,000) (2,465,000)	4,138,000 (2,854,000) (1,284,000)	1. None. 2. Provide scheduled powerhouse maintenance.
Lost Creek Lake	3,781,000 (3,035,000) (746,000)	4,021,000 (3,207,000) (814,000)	1. None. 2. None.
McNary Lock and Dam	11,332,000 (5,669,000) (5,663,000)	11,242,000 (5,709,000) (5,533,000)	1. None. 2. Provide scheduled powerplant maintenance. Rehabilitate fishway entrance gates and floating orifices.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

3. MULTIPLE PURPOSE POWER PROJECTS. (Continued)

State / Project Name	OBLIGATIONS Estimated FY 1996 ($)	OBLIGATIONS Estimated FY 1997 ($)	EXPLANATION OF MAJOR CHANGES
	Total (Operations)	Total (Operations)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-).
	(Maintenance)	(Maintenance)	2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
WASHINGTON			
Chief Joseph Dam	11,533,000	12,830,000	
	(6,441,000)	(6,645,000)	1. None.
	(5,092,000)	(6,185,000)	2. Provide powerplant and dam maintenance; maintain buildings, grounds and utilities; and maintain and purchase permanent operating equipment.
Ice Harbor Lock and Dam	11,377,000	7,689,000	
	(4,282,000)	(4,295,000)	1. None.
	(7,095,000)	(3,394,000)	2. Provide scheduled powerplant maintenance and replace turbine blades, unit #2.
Little Goose Lock and Dam	4,997,000	5,187,000	
	(2,872,000)	(3,046,000)	1. None.
	(2,125,000)	(2,141,000)	2. Provide scheduled powerplant maintenance.
Lower Granite Lock and Dam	8,968,000	7,541,000	
	(3,820,000)	(4,789,000)	1. Increased effort on long term study management plan FY 97.
	(5,148,000)	(2,752,000)	2. Provide scheduled powerplant maintenance.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

3. MULTIPLE PURPOSE POWER PROJECTS. (Continued)

State Project Name	OBLIGATIONS Estimated FY 1996 ($)	Estimated FY 1997 ($)	EXPLANATION OF MAJOR CHANGES
	Total (Operations) (Maintenance)	Total (Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
WASHINGTON (continued)			
Lower Monumental Lock and Dam	8,861,000 (2,915,000) (5,946,000)	5,876,000 (3,156,000) (2,720,000)	1. None. 2. Provide scheduled powerplant maintenance.
The Dalles Lock and Dam	11,519,000 (5,079,000) (6,440,000)	10,820,000 (5,496,000) (5,324,000)	1. None. 2. Provide scheduled powerplant maintenance.
Other Projects Maintained Periodically	642,000 (642,000) (0)	0 (0) (0)	1. None. 2. None.
TOTAL - MULTIPLE PURPOSE PROJECTS	139,996,000 (67,726,000) (72,270,000)	128,608,000 (70,750,000) (57,858,000)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

4. PROTECTION OF NAVIGATION.

Project Condition Surveys

The $ 1,001,000 requested in FY 97 supports hydrographic surveys, inspections, and studies to determine the condition of navigation channels that do not have any other maintenance work included in the budget request and disseminate the information to users of the projects. For the projects that do not require maintenance, surveys are performed at many of them in order to determine the degree of sedimentation so that users can be advised of channel conditions and future maintenance can be scheduled.

State Project Name	OBLIGATIONS Estimated FY 1996 ($) Total (Operations) (Maintenance)	Estimated FY 1997 ($) Total (Operations) (Maintenance)	EXPLANATION OF MAJOR CHANGES 1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Project Condition Surveys	601,000	1,001,000	
State:			
Alaska	(333,000)	(565,000)	1. Increased surveys FY 97.
Idaho	(7,000)	(0)	1. Discontinued maintenance. Removal of existing navigation markers due to environmental controls in Hells Canyon area.
Oregon	(90,000)	(154,000)	1. Increased surveys FY 97.
Washington	(171,000)	(282,000)	1. Increased surveys FY 97.

1040

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

4. PROTECTION OF NAVIGATION. (continued)

Surveillance of Northern Boundary Waters

The $ 202,000 requested in FY 97 supports meeting U. S. obligations under provisions of boundary water treaties and other international agreements. Data collection includes current velocity measurements, presence and intensity of ice, water levels, land use patterns and estimating potential damages caused by extreme levels. This information can be used to enhance water level forecasts, develop crises response plans, and provide advance warning to area residents and waterway users of impending floods or ice jams.

State Project Name	OBLIGATIONS Estimated FY 1996 ($)	Estimated FY 1997 ($)	EXPLANATION OF MAJOR CHANGES
	Total (Operations) (Maintenance)	Total (Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Surveillance of Northern Boundary Waters	182,000	202,000	
State:			
Idaho	(44,000)	(45,000)	1. None.
Montana	(12,000)	(14,000)	1. None.
Oregon	(47,000)	(56,000)	1. None.
Washington	(79,000)	(87,000)	1. None.
TOTAL - PROTECTION OF NAVIGATION	783,000 (783,000) (0)	1,203,000 (1,203,000) (0)	
GRAND TOTAL	209,009,000 (84,432,000) (124,577,000)	199,756,000 (89,324,000) (110,432,000)	

APPROPRIATION TITLE: Operation & Maintenance, General - Multiple-Purpose Power Projects

PROJECT: John Day Powerhouse, Oregon and Washington (Major Rehabilitation)(Continuing)

LOCATION: On the Columbia River at the head of The Dalles Dam pool, River Mile 215.6, about 100 miles east of Portland, Oregon.

DESCRIPTION: Major rehabilitation of 16 generating units (turbines and generators) and appurtenant support equipment (controls, station service and circuit breakers).

AUTHORIZATION: 1950 and 1965 Flood Control Acts (Existing Project).

REMAINING BENEFIT - REMAINING COST RATIO: 1.77 to 1 at 8-1/8 percent.

TOTAL BENEFIT - COST RATIO: 1.03 to 1 at 8-1/8 percent.

INITIAL BENEFIT - COST RATIO: 1.2 to 1 at 8-1/8 (FY 1985).

BASIS OF BENEFIT - COST RATIO: Turbine and generator repair benefits are from Reconnaissance Report approved in August 1987 at October 1983 price levels.

SUMMARIZED FINANCIAL DATA			STATUS (1 Jan 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Appropriation Requirement		$40,800,000			
Future Non-Federal Reimbursement		$40,800,000			
Estimated Federal Cost (Ultimate)		0	Entire Project	90	Sep 1997
Estimated Non-Federal Cost		$40,800,000			
Reimbursements	$40,800,000				
Power	$40,800,000				
Total Estimated Project Cost		$40,800,000			

1042

SUMMARIZED FINANCIAL DATA: (continued)

		Accum.% of Est Federal Cost
Allocations to 30 September 1995	$36,075,000	
Conference Allowance for FY 1996	2,765,000	
Allocation for FY 1996	2,659,000 1/	
Allocations through FY 1996	38,734,000	95
Allocation Requested for FY 1997	2,066,000	100
Scheduled Balance to Complete after FY 1997	0	
Unscheduled Balance to Complete after FY 1997	0	

PHYSICAL DATA (EXISTING PROJECT)

Powerhouse: Number of completed bays initial installation - 16; Number of skeleton bays initial installation - 4; Generator nameplate rating - 135,000 kw; Initial plant capacity - 2,160,000 kw.

1/ Based on $106,000 assigned as savings and slippage.

JUSTIFICATION: The importance of John Day Dam to the northwest regional power pool is far greater than may be inferred from its 7 percent share of total NW system output or its 18% share of Corps of Engineers regional production. Because of its large capacity, relative freedom from operating constraints, and strategic location with respect to load centers, transmission lines, and to other major hydroelectric projects, John Day Dam is probably the most important project as far as control of the regional power system is concerned. The North Pacific Division has been continuously monitoring the generator availability rates for all of the Corps of Engineers hydroelectric projects in the Pacific Northwest since 1955. Because all of these projects utilize basically the same maintenance program and all report unit availability based upon identical criteria, the availability datum is extremely useful for projected abnormal situations. The yearly average availability from 1975 to 1986 was 91.5 percent. In 1984, John Day unit availability fell to an all-time low of approximately 78.1 percent, substantially affecting John Day's ability to provide automatic generation control and spinning reserve for the Northwest Power Pool. To raise John Day's availability rate and maintain optimum availability of 95 percent requires major rehabilitation of the generating units and appurtenant support equipment. It is essential that the rehabilitation program be systematically carried to completion. Failure to perform major rehabilitation will promote deterioration of powerhouse availability. Operation of the power plant for peaking as well as for balancing regional power load variations requires rapid control of generating units to compensate for changing load and voltage conditions. Frequent unit loading and unloading have taxed the turbines and generators in excess of their original design capability. As an example, the number of circuit breakers' "close-open" operations has increased from 14 per day in 1972 to 27 per day in 1981; this not only creates additional cycling on the circuit breakers themselves, but it is also indicative of additional thermal cycling and wear and tear on the turbines, generators, and related features of the

JUSTIFICATION: (Cont'd)
generating system. Because the original design did not fully anticipate these additional demands on the generating units, defects are now appearing in them and outage problems have increased, lowering unit availability. A case in point has been turbine blade servomotor piston cap failures. Unit outages resulting from this defect have accounted for much of the reduced unit availability. Anticipated generator stator winding failures in the future would decrease generating availability to below 70 percent. The average annual benefits attributable to this project are currently estimated at $264,000.

FISCAL YEAR 1997: The requested amount of $2,066,000 will be applied as follows:

Complete Powerhouse Rehabilitation	$ 1,938,000
Engineering and Design	81,000
Supervision and Administration	47,000
Total	$ 2,066,000

STATUS OF LOCAL COOPERATION: None required for major rehabilitation.

NON-FEDERAL COSTS: Costs allocated to power, presently estimated at $40,800,000, are reimbursable. This project is a part of the Federal Columbia River power system. Bonneville Power Administration (BPA), the federal marketing agency, establishes system rate levels adequate to recover all capital investment cost for generating projects (including Corps generating projects) within 50-year period and to repay annual OM&R and interest expenses. BPA submits annual financial statements to Congress, as required by law, on repayment and periodically recommends rate adjustment as required for meeting repayment obligations.

COMPARISON OF FEDERAL COST ESTIMATE: The current federal cost estimate of $40,800,000 reflects a decrease of $1,000,000 from the previous estimate ($41,800,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Post Contract Award and Other Estimating Adjustment (including contingency adjustments)	$ -1,000,000
Total	$ -1,000,000

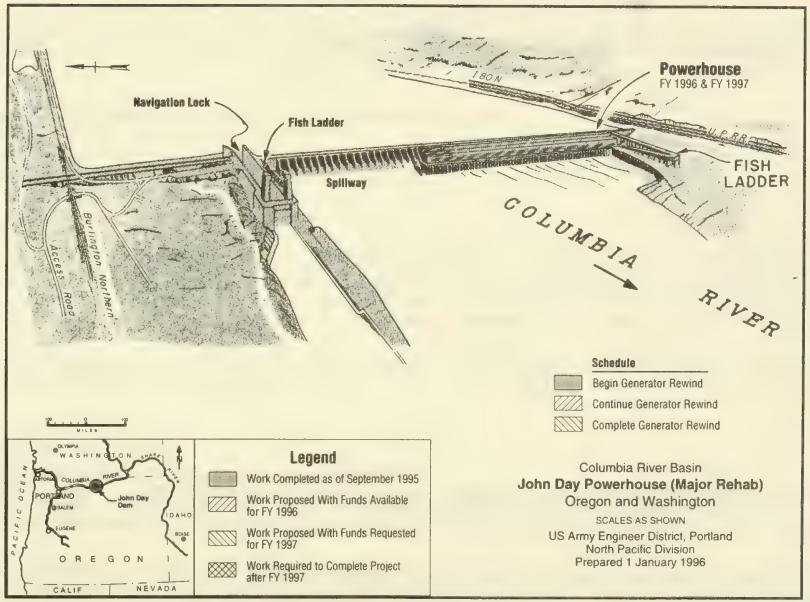
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 29 July 1975.

OTHER INFORMATION:

Initial construction of the powerhouse was completed in 1971. A reconnaissance report, turbine-generator equipment studies, and initial engineering and design and construction efforts were initially financed by Operation and Maintenance, General in FY 1982. The Project Management Plan was approved in June 1991. Funds to initiate major powerhouse rehabilitation under Operation and Maintenance, General were provided in FY 1985. Each unit outage will be approximately 34 weeks.

The scheduled completion date of 30 September 1997 is a delay of 12 months from the last completion date (FY 1996) presented to Congress. This is due to delays incurred by the failed interlaminar tests and requirement for thrust bearing refurbishment on Unit 5. We are forecasting a delay in physical completion of the generator rewind contract to 1 May 1997, and fiscal completion of the project to 30 September 1997.

1045


Powerhouse
FY 1996 & FY 1997
Navigation Lock
Fish Ladder
Spillway
FISH LADDER
COLUMBIA RIVER
Burlington Northern
Access Road
BON
U.P.R.R.
Schedule
Begin Generator Rewind
Continue Generator Rewind
Complete Generator Rewind
MILES
WASHINGTON
OLYMPIA
COLUMBIA RIVER
PORTLAND
SALEM
EUGENE
John Day Dam
IDAHO
BOISE
OREGON
CALIF
NEVADA
PACIFIC OCEAN
Legend
Work Completed as of September 1995
Work Proposed With Funds Available for FY 1996
Work Proposed With Funds Requested for FY 1997
Work Required to Complete Project after FY 1997
Columbia River Basin
John Day Powerhouse (Major Rehab)
Oregon and Washington
SCALES AS SHOWN
US Army Engineer District, Portland
North Pacific Division
Prepared 1 January 1996

18 March 1996

Status Report on Civil Works Activities in the Ohio River Division Fiscal Year 1997 Colonel Alexander R. Jansen, Division Engineer

AREA OF RESPONSIBILITY

The Ohio River Division is responsible for water resources development within the Ohio River Basin, an area of 204,000 square-miles, including portions of 14 states, 63 Congressional districts, and a population of 25 million. The Ohio River Basin is a key agricultural, industrial and manufacturing area in the heartland of the nation.

Centrally located at Cincinnati, Ohio, the division has district offices in Pittsburgh, Penn.; Huntington, W.Va.; Louisville, Ky.; and Nashville, Tenn.

This status report covers the three major programs comprising the budget: General Investigations; Construction, General, including the Inland Waterways Trust Fund; and Operation and Maintenance, General.

BUDGET COMPARISON FISCAL YEARS 1996-1997

Our Fiscal Year 1997 budget request of $414.393 million will enable the Ohio River Division to maintain current schedules for the General Investigations and Construction, General programs and meet essential requirements for Operation and Maintenance activities. The Construction, General program supports the significant ongoing modernization of the Ohio River navigation system.

The Fiscal Year 1997 request is an increase of $72.3 million over the Fiscal Year 1996 request. This growth over last year includes increases of $2.9 million in General Investigations and $82.1 million in Construction, General while Operation and Maintenance, General has decreased by $12.7 million. The decrease in Operation and Maintenance, General is due to cyclical maintenance funding requirements.

The total program in Fiscal Year 1996 included programmed carryovers of $2 million in General Investigations and $117.5 million in Construction, General. Therefore, the total Fiscal Year 1997 program is a reduction of $47.2 million from the requested Fiscal Year 1996 program.

	Fiscal Year 1996 Budget Request (Programmed Carryover)	Fiscal Year 1997 Budget Request (Programmed Carryover)
	$ 342,090,000	$ 414,393,000
	(119,500,000)	(0)
TOTAL	$ 461,590,000	$ 414,393,000

FISCAL YEAR 1997 BUDGET

The Fiscal Year 1997 budget request is detailed in the table below. Each appropriation category will be addressed in turn.

Summary of Fiscal Year 1997 Budget Request

APPROPRIATION CATEGORY	FY 96 BUDGET REQUEST $000	FY 97 BUDGET REQUEST $000
GI	$ 13,647	$ 16,506
CG/IWTF*	87,761	169,899
O&M	240,682	227,988
TOTAL	342,090	414,393

* Includes $71.422 million from the Inland Waterways Trust Fund (IWTF).

The average General Investigations expenditures over the past three fiscal years has been over $21.8 million. In Fiscal Year 1995 we executed over $26 million, our highest execution total ever. Actual General Investigations execution reflected 101 percent of scheduled expenditures. Our Fiscal Year 1997 General Investigations budget request is for $16.506 million.

The average Construction, General expenditures, including the Inland Waterways Trust Fund, over the past three fiscal years has been about $190 million. In Fiscal Year 1995 we executed $210.985 million. Actual Construction, General execution reflected 103.9 percent of scheduled expenditures. Our Fiscal Year 1997 budget request is for $169.899 million.

The average Operation and Maintenance expenditures over the past three fiscal years has been about $ 229.4 million. Actual Operation and Maintenance execution reflected 97 percent of available funds. In Fiscal Year 1995 we executed $230.453 million. Our Fiscal Year 1997 budget is for $227.988 million.

GENERAL INVESTIGATIONS

HIGHLIGHTS OF FISCAL YEARS 1995-1996

Reconnaissance Studies

The division completed four reconnaissance studies in Fiscal Year 1995 and an additional ten will be completed in Fiscal Year 1996. If warranted, five of these studies will result in follow-on flood control feasibility efforts at Metropolitan Cincinnati, Northern Kentucky and Metropolitan Louisville, Southwest in Kentucky; Metropolitan Center Levee, Nashville, Tenn., and for environmental restoration in the Cheat River Basin, North Branch Lick Run and Tygart River Basin, Grassy Run in West Virginia. A sixth reconnaissance study, in the Conemaugh River Basin at Nanty Glo, Penn., has been completed and the feasibility phase will begin soon.

Feasibility Studies

The division will complete one feasibility study in Fiscal Year 1996 at Indianapolis (North), Ind., on the White River. The study is investigating a local protection project consisting of floodwalls and levees. The project is authorized and estimated to cost $16.6 million.

BUDGET REQUEST FOR FISCAL YEAR 1997

The General Investigations request of $16.506 million provides funds for 13 surveys and 5 preconstruction engineering and design activities. This status report will highlight the studies and projects in the General Investigations program.

	START	CONTINUE	COMPLETE	
Surveys	0	7	6	$ 10,665,000
Preconstruction Engineering & Design	0	3	2	5,841,000
TOTAL	0	10	8	$ 16,506,000

Navigation Studies

The Fiscal Year 1997 budget contains funds to continue two navigation studies.

Ohio River Mainstem Systems Study, Kentucky, Illinois and Indiana

The largest navigation study is the Ohio River Mainstem Systems Study. Our expanded study effort will allow for optimization of investments, as well as for a trade-off analysis between different levels of Operations and Maintenance investment versus new improvements. The study includes evaluation of current operation and maintenance practices and needs, existing major rehabilitation needs and the system's lock efficiencies from Cairo, Ill., to Pittsburgh, Penn. Innovative design and construction techniques will be analyzed during the study of this system in order to reduce costs. Low cost methods for expanding existing lock chambers are being developed. Fiscal Year 1997 funds of $7.7 million will be used to continue the study effort.

Kanawha River Navigation, West Virginia

Navigation on the Kanawha River, a tributary of the Ohio River, is maintained by Winfield, Marmet and London Locks and Dams. These three projects, nearly 60 years old, have small dual-chambered 56 by 360-foot locks which severely restrict the use of modern, efficient towing equipment. Construction of a new 110 by 800-foot lock at Winfield began in June 1990 and is now 70 percent complete. The Marmet study was completed in December 1993 recommending another new 110 by 800- foot lock at that location. London tonnage has increased an average of 16 percent per year since 1985, and the anticipated increased demand for low sulfur coal could result in lock congestion problems early next century. Fiscal Year 1997 funds of $400,000 will be used to complete the London interim study and continue work on the Kanawha River system final report.

Flood Damage Prevention Studies

Fiscal Year 1997 funding is requested to continue three and complete two flood damage prevention studies.

Lexington, Fayette County, Kentucky

The Lexington, Fayette County, Ky., study is investigating reoccurring flood damage in a highly urbanized and expanding area. Parts of the damage area include the University of Kentucky campus. The study will consider both structural and non-structural solutions to the complex flooding and drainage problems on six streams which border the area and drain into the Kentucky River. Flooding is compounded by the Karst topography and numerous sink holes that are unable to handle large storm volumes, resulting in out-of-bank stream flooding. Lexington Fayette Urban County Government has requested assistance in resolving the flood problems and expressed its understanding of and interest in cost sharing future efforts. Fiscal Year 1997 funds of $149,000 will be used to complete the reconnaissance phase in April 1997.

Metropolitan Cincinnati, Northern Kentucky, Kentucky

The three counties of Boone, Kenton and Campbell in Northern Kentucky are being studied for flood control problems. To date, potential flooding at the community of Silver Grove along the Ohio River in Campbell County and in Boone County's Gunpowder Creek Basin are areas of focus. The Boone County area in particular has experienced dramatic urbanization and is now experiencing increased flooding. Fiscal Year 1997 funds of $315,000 will be used to continue into the feasibility study, if warranted.

Metropolitan Louisville, Beargrass Creek, Kentucky

Beargrass Creek is a tributary of the Ohio River located in central Jefferson County, Kentucky. Limited channel capacity and increased runoff from upstream development would result in approximately $2.1 million in average annual damages to the basin. The feasibility study, with the Louisville and Jefferson County Metropolitan Sewer District, is currently underway and is focusing on channel modifications and detention basins. Fiscal Year 1997 funds of $80,000 will be used to complete the feasibility study in February 1997.

Metropolitan Louisville, Southwest, Kentucky

The study area is located in Southwest Louisville, Ky., in the vicinity of the University of Louisville and the Churchill Downs race course. The study is looking at a variety of urban drainage and flood control problems which are associated with inadequate major drainage outlets. In addition, interior drainage capacity behind the Ohio River levee and floodwall may be inadequate. Fiscal Year 1997 funds of $262,000 will be used to continue the feasibility study, if warranted, with the Louisville and Jefferson County Metropolitan Sewer District.

Metro Center Levee, Davidson County, Tennessee

Metro Center is a commercial development, located along the Cumberland River in Nashville, Tenn. The complex contains about 50 structures with an estimated value of $150 million. A 3.1 mile levee protects this complex from flooding. The toe of the levee in two areas and the remainder of the project exhibits signs of overall deterioration. This deterioration and seepage problems are threatening the structural stability of the levee. Fiscal Year 1996 funds are being used to complete a reconnaissance phase study and continue into the feasibility phase, if warranted. Fiscal Year 1997 funds of $330,000 will be used to continue the feasibility study which is scheduled for completion in August 1997.

Special Studies

The Fiscal Year 1997 funds are requested to continue two and complete three special studies.

Green and Barren Rivers Navigation Disposition Study, Kentucky

Funds were Congressionally added in Fiscal Year 1996 to determine the feasibility of deauthorizing and disposing of Green River Lock and Dam 6 in Kentucky. The Green and Barren River Navigation Disposition Study has been expanded to evaluate the status of the Green River Locks and Dams 3 through 6 and Barren River Lock and Dam 1 and recommend whether continued caretaker status is warranted or whether the projects should be deauthorized. Fiscal Year 1997 funds of $380,000 will be used to complete the disposition report in July 1997.

Conemaugh River Basin, Nanty Glo Environmental Restoration, Pennsylvania

A reconnaissance study, completed in February 1994, investigated problems and opportunities in the basin related to flood damage reduction and mining-related environmental restoration. No economically feasible solution to the flood problems was identified. However, seven environmental restoration project sites, all of which have been severely degraded by bituminous coal mining activities, were identified as candidates for cost shared feasibility phase studies. In March 1995, a concept plan was completed for restoration of environmental degradation from the Webster Mine Discharge at Nanty Glo, Penn. The Cambria County Conservation and Recreation Authority is the sponsor for the Webster Discharge feasibility study. Fiscal Year 1997 funds of $50,000 will be used to complete the feasibility study in August 1997.

Youghiogheny River Lake Storage Reallocation, Pennsylvania and Maryland

The Municipal Authorities of Westmoreland County and North Fayette County in Pennsylvania presently obtain a large portion of their untreated water from the Youghiogheny River. The operation of these systems is regulated by the Pennsylvania Department of Environmental Resources, which establishes a maximum daily withdrawal limit based upon minimum acceptable river flows to ensure that the water quality and low flow augmentation purposes of Youghiogheny Lake are not compromised. As a result of increasing water demand and recent regional drought conditions, the Department of Environmental Resources has directed these water companies to secure additional storage to provide the needed supplemental releases during periods of low flow and high demand. The water companies have requested the Corps of Engineers to explore the potential for reallocating a portion of the Youghiogheny Lake storage for water supply. The Commonwealth of Pennsylvania and the municipal water authorities have indicated an interest in cost sharing the feasibility study, and have also indicated a willingness to purchase any additional storage that could be reallocated to water supply. Fiscal Year 1997 funds of $175,000 will be used to complete the reconnaissance study in January 1997.

Cheat River Basin, North Branch, Lick Run Environmental Restoration, West Virginia

The North Branch of Lick Run is a tributary of Lick Run that flows into the Cheat

River, in northeastern West Virginia. A reconnaissance study completed in November 1995 evaluated the entire Cheat River Basin for flood control and environmental restoration. The study identified significant environmental degradation problems, as a result of past mining activities, in the North Branch of Lick Run. Acid mine drainage has resulted in water quality degradation, destruction of habitat, declining populations of fishery and invertebrate aquatic resources and a degraded ecosystem. The West Virginia Division of Environmental Protection has indicated an interest to cost share the feasibility phase study. Fiscal Year 1997 funds of $350,000 are being used to continue into the feasibility phase, if warranted.

Tygart Valley River Basin, Grassy Run Environmental Restoration, West Virginia

Grassy Run, a tributary of the Tygart River, is another area of West Virginia in which decades-old mining activities have resulted in pollution of the stream by acid mine drainage. An environmental restoration project to eliminate acid mine drainage from Grassy Run would stimulate the ecological recovery of Tygart River Lake, reduce Federal project operations and maintenance costs, and lower costs associated with local community water supply and treatment measures. Fiscal Year 1997 funds of $350,000 will be used to continue into the feasibility study, if warranted, with our partner, the West Virginia Division of Environmental Protection.

Comprehensive Studies

Fiscal Year 1997 funds are also requested to complete one comprehensive study.

Wabash River Basin (Middle Reaches), Indiana

This study is addressing agricultural flood protection and environmental restoration involving fish and wildlife resources and wetlands in the Greenfield Bayou area of Vigo County, Indiana. Average annual flood damages in this area are estimated at $1.7 million. Fiscal Year 1997 funds of $105,000 will be used to complete the feasibility phase which is being cost shared by the State of Indiana and Vigo County. The feasibility study is scheduled for completion in August 1997.

Preconstruction Engineering and Design

The Fiscal Year 1997 budget recommends funds to continue three and complete two preconstruction engineering and design activities.

Navigation

Fiscal Year 1997 funds are requested to continue two and complete one navigation preconstruction engineering and design activities.

Kentucky Lock, Kentucky

Kentucky Lock and Dam is located on the Tennessee River 22 miles above its confluence with the Ohio River. The existing lock is 110 by 600 feet, has a lift of 56 feet, and placed in operation in 1942. A canal connects the Tennessee and Cumberland River systems just upstream of the Kentucky Lock and Barkley Lock. A 110 by 800-foot lock exists at Barkley Dam. Due to poor navigation conditions and higher costs to use the narrow lower Cumberland River, the vast majority of traffic uses the Kentucky Lock and lower Tennessee River. Neither lock is compatible with neighboring 1,200 foot locks on the Ohio River and the majority of tows must be broken into two lockages to traverse the system. During 1992-94, an average of over 37.4 million tons of commodities passed through the Kentucky-Barkley system. In recent years the tows at Kentucky Lock experienced five hour delays plus double lockage requirements. By 2005, traffic demand will reach 53 million tons, creating even further delays for the existing lock system. The proposed project, estimated to cost $395 million, recommends construction of an additional 110 by 1,200-foot lock landward of the existing Kentucky Lock. The project is not authorized for construction. Fiscal Year 1997 funds of $3 million will be used to continue preconstruction engineering and design activities.

London Locks and Dam, West Virginia

London Locks and Dam, one of three existing Kanawha River, West Virginia, projects, is now over 50 years old and has small dual-chambered 360 by 56-foot locks. Traffic at London was approximately 7.5 million tons in 1993, much of which is coal. It is expected that future lockage delays at London will increase significantly with completion of the new Winfield Lock and proposed new lock at Marmet. The National Economic Development plan recommends a 40-foot extension of the existing landward lock chamber and is estimated to cost $25 million. The project is not authorized for construction. Fiscal Year 1997 funds of $366,000 will be used to continue into preconstruction engineering and design.

Marmet Locks and Dam, West Virginia

The existing Marmet Locks and Dam project in West Virginia, is located on the Kanawha River, a tributary of the Ohio River. It has small dual-chambered 56 by 360-foot locks which severely restrict the use of modern, efficient towing equipment. The project, estimated to cost $229.6 million, consists of a new 110 by 800-foot lock landward of the existing locks and is not authorized for construction. Fiscal Year 1997 funds of $1.85 million will be used to complete preconstruction engineering and design in September 1997.

Flood Control

The Fiscal Year 1997 budget request includes funds to continue one and complete one flood control preconstruction engineering and design activities.

Indianapolis, White River (North), Indiana

The White River Basin in Indiana, a drainage area including Indianapolis in Marion County, experiences chronic flooding and drainage problems. The Indianapolis, North study is investigating reconstruction and extension of non-Federal levees in the communities of Warfleigh and Rocky Ripple in northern Indianapolis. The project was authorized for construction by the Flood Control Acts of 1936 and 1946 and is estimated to cost $16.6 million. Congressionally added funds in Fiscal Year 1996 will be used to initiate preconstruction engineering and design. Fiscal Year 1997 funds of $475,000 will complete preconstruction engineering and design in September 1997.

Metropolitan Louisville, Beargrass Creek, Kentucky

The Beargrass Creek, Ky., recommended plan will consist of a combination of detention basins, channel improvements and floodwalls/levees on the South Fork of Beargrass Creek and Buechel Branch. The total project cost is estimated at $10.3 million. The local sponsor, the Louisville and Jefferson County Metropolitan Sewer District, strongly supports the project. The project is not authorized for construction. Fiscal Year 1997 funds of $150,000 will be used to continue into preconstruction engineering and design.

CONSTRUCTION, GENERAL

HIGHLIGHTS OF FISCAL YEAR 1995-1996

In Fiscal Year 1995, major construction contracts were awarded on seven projects, including construction components of the Robert C. Byrd Locks and Dam on the Ohio River, and Locks and Dam 2, 3 and 4 and Grays Landing on the Monongahela River. Contracts for sections of local flood control contracts were awarded on the West Columbus, Ohio, and Frankfort and Harlan projects in Kentucky. A repair and restoration contract was also awarded for the Turtle Creek, Penn., flood control project. During Fiscal Year 1995, the Barbourville, Ky., levee/floodwall and Grays Landing Dam were completed. In Fiscal Year 1995, nonstructural floodproofing and acquisition work was initiated in Pike County, Ky., and continued at Lower Mingo County, Hatfield Bottom and Matewan, W.Va.; and South Williamson, Barbourville, and Harlan, Ky.

In Fiscal Year 1996 funds will be used to pursue work on six navigation, eight local flood protection, three dam safety assurance, two environmental restoration, one multipurpose and one major rehabilitation projects. In December 1995, a $224 million contract was awarded for construction of the twin 110 by 1,200-foot Olmsted Locks on the lower Ohio River. During the remainder of this fiscal year, an additional 10 major contracts are scheduled for award. These include components of the Robert C. Byrd and McAlpine navigation projects on the Ohio River, and Locks and Dams 2, 3 and 4 on the Monongahela River; and sections of

23-577 96 – 34

flood control projects at West Columbus, Ohio, and at Salyersville, Williamsburg and Harlan, Ky. Construction contracts to be completed this fiscal year include the cofferdam for the Olmsted Locks, Point Marion Lock, removal of old Lock and Dam 7 on the Monongahela River, dam fuse plug at Center Hill Lake, Tenn., and sections of the West Columbus, Ohio, and Harlan, Ky., flood protection projects.

In Fiscal Year 1996, nonstructural floodproofing and acquisition are being initiated at Upper Mingo County, W.Va., and Middlesborough, Ky. Nonstructural work will continue at the Lower Mingo County and Hatfield Bottom, W.Va.; Pike County, Williamsburg, and Harlan, Ky. Nonstructural work will complete at Barbourville, and South Williamson, Ky.

BUDGET REQUEST FOR FISCAL YEAR 1997

In Fiscal Year 1997, $169.899 million for the Construction General program will be used for construction at 16 projects.

PROJECTS		
Navigation	6	$138,111,000*
Flood Control	6	22,968,000
Multi Purpose	1	4,400,000
Dam Safety Assurance	2	2,220,000
Major Rehabilitation	1	2,200,000
TOTAL	16	$169,899,000

* Includes $71.422 million from the Inland Waterways Trust Fund.

New Starts

Funds in the Fiscal Year 1997 request will be used to initiate construction of three flood control projects.

Metropolitan Louisville, Pond Creek, Kentucky

The Pond Creek, Kentucky project is located in southern Jefferson County, Kentucky. The project consists of construction of detention basin storage and channel enlargement along approximately 2.4 miles of Pond Creek and 1.5 miles of a tributary (Northern Ditch). The total project cost is $16.81 million. The local sponsor will initiate real estate acquisition in Fiscal Year 1997. In Fiscal Year 1997, $3.089 million will be used to initiate channel construction, fish and wildlife facilities and continue project design.

Metropolitan Region of Cincinnati, Duck Creek, Ohio

Duck Creek is located in the city of Cincinnati and village of Fairfax, Ohio. The $17.375 million project consists of two miles of levees and floodwalls, two pump stations and 1,200 feet of channel relocations. The local sponsor will initiate real estate acquisition in Fiscal Year 1997. Fiscal Year 1997 funds of $466,000 will be used to initiate channel modifications, demolish an abandoned bridge, and continue project design.

Saw Mill Run, Pittsburgh, Pennsylvania

The $14.1 million Saw Mill Run, Penn., project consists of 4,700 feet of channel deepening and realignment and streambank stabilization. The local sponsor will initiate real estate acquisition in Fiscal Year 1997. Fiscal Year 1997 funds of $500,000 will be to continue project design.

Navigation

Funds in the Fiscal Year 1997 request will be used to continue construction of six navigation projects.

Olmsted Locks and Dam, Illinois and Kentucky

Construction is underway on the Olmsted Locks and Dam which will replace the 66-year-old Locks and Dams 52 and 53 on the lower Ohio River. The $1.02 billion Olmsted project will provide twin 110 by 1,200-foot locks and a "run-of-the-river" dam that will allow traffic to pass about 58 percent of the time without locking. Construction contracts for the lock cofferdam, access road and resident engineer's office have been completed. Fiscal Year 1997 funds of $70.4 million will be used to continue lock construction, initiate and complete relocation of a boat ramp, complete waterfowl management facilities and continue project design.

McAlpine Locks and Dam, Kentucky and Indiana

At McAlpine Locks and Dam, located on the Ohio River at Louisville, Ky., the obsolete 110 by 600-foot auxiliary lock chamber will be replaced with a new 110 by 1,200-foot lock at an estimated cost of $255 million. The new lock will compliment an existing 1,200-foot lock to provide twin 1,200-foot locks for tow traffic. Fiscal Year 1997 funds of $7.5 million will be used for construction of an access bridge and service buildings, and continue project design.

Grays Landing Lock and Dam, Monongahela River, Pennsylvania

The Grays Landing Lock and Dam, located 85 miles upstream of Pittsburgh, Penn., on the Monongahela River, replaces existing Lock and Dam 7 with a 84 by 720-foot lock and a fixed crest dam. The new lock and dam has been in operation since 1995. Fiscal Year 1997 funds of $100,000 will be used to continue cultural resource mitigation, relocations and bank stabilization.

Locks and Dams 2, 3, and 4, Monongahela River, Pennsylvania

Locks and Dams 2, 3 and 4, located between river miles 11.2 and 41.5 upstream of Pittsburgh, Penn., are the last of the old, undersized structures on the Monongahela River. Age, deterioration, structural instability, and undersized locks are diminishing system reliability, resulting in frequent and long interruptions of navigation. The project includes replacement of the existing dam with a new gated dam and rehabilitated auxiliary chamber floodway bulkhead structure at Lock and Dam 2; removal of Locks and Dam 3; and construction of new twin 84 by 720-foot locks at Locks and Dam 4. The total project cost is estimated at $645 million. Fiscal Year 1997 funds of $17.1 million will be used to continue construction at Lock 2, relocations, real estate acquisition, and continue project design.

Robert C. Byrd Locks and Dam, West Virginia and Ohio

At the Robert C. Byrd Locks and Dam on the Ohio River, the existing locks were replaced with two new locks, 110 by 1,200 feet and 110 by 600 feet. The new locks, which became operational in January 1993, have reduced the transit time from 17 hours to one hour per tow. In its first three years, Robert C. Byrd Locks have realized transportation savings of nearly $88 million. These savings are the dividends on a Federal investment which is shared by all citizens whose lives and livelihood are affected by the commodities which transit the Inland Navigation System. In addition to the new lock, the project includes rehabilitation of the existing roller dam originally constructed in 1937. Total project cost is estimated to be $373 million. Fiscal Year 1997 funds of $12.158 million will continue dam rehabilitation, ice boom construction, fish and wildlife mitigation work and project design.

Winfield Locks and Dam, Kanawha River, West Virginia

The modernization of Winfield Locks and Dam on the Kanawha River includes construction of an additional 110 by 800-foot lock chamber, located landward of the existing locks, and a 110-foot non-navigable gate bay. The total project cost is estimated to be $225.6 million. Construction of the new lock began in May 1994 and is scheduled to be operational in the summer of 1997. Fiscal Year 1997 funds of $30.9 million will continue construction of the lock, channel and canal, project buildings and facilities, purchase permanent operating equipment, and continue project design.

Flood Control

In addition to the three new start flood control projects described above, Fiscal Year 1997 funds will also be used to continue construction of three flood control projects.

Holes Creek, West Carrollton, Ohio

The Holes Creek flood control project, located in West Carrollton, Ohio, was a Congressional add in Fiscal Year 1996. The $4.567 million project consists of 0.9 mile of channel modifications and replacement of a railroad bridge. Fiscal Year 1997 funds of $592,000 will be used to continue channel widening and project design.

West Columbus, Ohio

The $111 million West Columbus, Ohio, project consists of 5.2 miles of levee and floodwall system, two new pump stations, modifications of two existing pump stations and 14 gate closures. The first phase of the Dry Run Levee was completed and dedicated in October 1995. A contract has been executed with the Ohio Department of Transportation (ODOT) for construction of gate closures at Soulder Avenue and State Road 315 and for modification of the I-670 embankment. ODOT will accomplish this work as a part of its ongoing highway construction efforts within the project area. Fiscal Year 1997 funds of $11.4 million will be used to complete Dry Run Levee, continue construction of flood protection structures between Grandview Avenue and I-670 and the Dodge Park pumping station and continue project design.

Levisa and Tug Forks of the Big Sandy River and the Upper Cumberland River, West Virginia, Virginia and Kentucky (Section 202)

Matewan, West Virginia (Element of Section 202)

The Matewan, W.Va., flood control project, located in the southwestern part of the state along the Tug Fork River, was initiated in 1992. Fiscal Year 1997 funds of $2.587 million will be used to complete project construction, including the floodwall/levee, pump station and site development and relocations at the Mate Creek Housing and Community Development Site.

Grundy, Virginia (Element of Section 202)

The Grundy, Va., flood control project, located in southwestern Virginia in the upper reaches of the Levisa Fork basin will be constructed in cooperation with a major highway relocation project by the Virginia Department of Transportation. Major features of the flood control project include a structural floodwall to protect

the central business district, relocation of two schools and fire station, construction of a flood-safe commercial development site, and voluntary flood proofing and acquisition. Fiscal Year 1997 funds of $1.4 million will be used to initiate land acquisition and relocations and continue project design.

Detailed Project Reports
(Element of Section 202)

In Fiscal Year 1997, $2.934 million will be used to complete Detailed Project Reports for Wayne County, W.Va.; Martin County and Clover Fork, Ky.; and the Levisa Basin, Va., and Ky., General Plan of Study. Work will continue on the McDowell County, W.Va.; Harlan County and the City of Cumberland, Ky., Detailed Project Reports.

Multi Purpose Projects

Barkley Dam and Lake Barkley, Kentucky and Tennessee

The Cross Creek National Wildlife Refuge in Kentucky was established in 1962 as mitigation for the loss of Kentucky Woodlands National Wildlife Refuge, which was partially inundated by Lake Barkley. Cross Creek stretches for 12.5 miles along either side of Lake Barkley about 60 miles upstream of the dam. Shoreline erosion threatens a system of dikes and water control structures in the refuge water system. Fiscal Year 1997 funds of $4.4 million will be used for construction of streambank stabilization and continue project design.

Dam Safety Assurance

Funds in the Fiscal Year 1997 request will be used for two projects.

Dewey Lake, Kentucky

This Dam Safety Assurance project at Dewey Lake in Kentucky includes raising the height of the dam by three feet and modifying the existing spillway to maintain design capacity and reduce the risk of dam failure. The total cost of the project modification is estimated at $18.3 million. Fiscal Year 1997 funds of $2 million will be used to initiate relocations and continue project design.

Beach City Lake, Ohio

The Beach City Lake, Ohio, project, located on a tributary of the Muskingum River Lakes System, includes raising the height of the dam by three feet and modifying the existing spillway to maintain design capacity and reduce the risk of dam failure. Total estimated cost of the upgrade is $3.5 million. The Fiscal Year 1997 funds of $220,000 will be used for dam safety corrections and continue project design.

Major Rehabilitation

Johnstown, Pennsylvania, Local Protection Project

At Johnstown, Penn., construction will continue rehabilitation of an existing Federally-maintained flood protection project which is over 50 years old. The estimated cost of the rehabilitation is $32.5 million. Fiscal Year 1997 funds of $2.2 million will be utilized to initiate construction on Units 5 and 6 and to continue real estate activities, relocations, cultural resources and continue project design.

OPERATION AND MAINTENANCE, GENERAL

HIGHLIGHTS OF FISCAL YEARS 1995-1996

Our estimated Operation and Maintenance program in the current fiscal year is $234.3 million. Several significant maintenance work items were completed in Fiscal Year 1995 or are projected for completion in Fiscal Year 1996 due to the aging infrastructure of our operating projects. Completed Fiscal Year 1995 maintenance activities include lock gate repairs at Maxwell on the Monongahela River, painting of tainter gates at the Point Marion Dam on the Monongahela River, and repair of generator windings at the Barkley power plant on the Cumberland River. Lock gate repairs at Emsworth on the Ohio River were completed earlier in this fiscal year. Also scheduled for completion in Fiscal Year 1996 are lock gate repairs at New Cumberland on the Ohio River and electrical control system repairs at Wilson main lock on the Tennessee River.

BUDGET REQUEST FOR FISCAL YEAR 1997

The Fiscal Year 1997 budget request for the Operation and Maintenance, General program is $228 million. This includes $141.3 million for operations activities and $86.7 million for required maintenance of projects. The extent of our Operations and Maintenance responsibilities are shown in the table below.

CATEGORY	EXTENT
Locks	60
Waterways (in miles)	2,582
Lakes and Reservoirs	78
Local Protection Projects	6
Hydropower	9

The Fiscal Year 1997 funding will meet essential requirements for major maintenance. Funding for operations activities remains relatively constant in relation to Fiscal Year 1996 funding levels.

The program request includes $110.5 million for navigation channels, harbors, locks and dams. Major structural and mechanical components at many of our navigation locks and dams will receive much needed repairs to such items as culvert valves at Belleville and miter gates at Greenup, Dashields and Hannibal on the Ohio River. Work will also include continuation of the repair of dam roller gate seals at Marmet on the Kanawha River.

The Fiscal Year 1997 request includes $71.9 million for flood control reservoir and channel improvement projects. Fiscal Year 1997 funds of $45.6 million are provided to meet the requirements of the 9 multiple purpose power projects in the Cumberland River Basin.

FLOOD DAMAGE PREVENTION

The American people have invested $3.5 billion in the Ohio River Basin's 78 flood control reservoirs and 89 local flood protection projects. These projects have prevented over $11 billion in cumulative basin-wide flood damages, a return of over three dollars for every dollar invested. During Fiscal Year 1995 the reservoirs and local flood protection projects within the Ohio River Division prevented losses of over $232 million.

Flooding of '96

This winter the Ohio River Division was very proud of the performance of its flood damage reduction projects within the Ohio River Division. In January, melting snowpack, combined with heavy rainfall resulted in the flooding of the Ohio River and many of its tributaries. Skillful operation of reservoirs throughout the Ohio Valley, as well as Corps-constructed levees protecting thousands of homes and businesses from inundation, resulted in preventing over $3.5 billion dollars in flood damages. In the hard hit Pittsburgh area alone, upstream reservoirs reduced the flood crest by 13 feet, preventing a record flood and over $2 billion dollars in damages in western Pennsylvania. Below Pittsburgh, Ohio River levels were generally held down as much as 10 feet, preventing $200 million of destruction in Ohio and West Virginia. Reservoir regulation on other West Virginia rivers and tributaries saved an additional $577 million dollars.

HYDROPOWER

The renewable nature of water resources makes hydropower an ideal supplemental energy resource. Foresight in planning has enabled the Corps to add generating units to dams completed many years ago. There are nine Corps of Engineers plants on the Cumberland River system with a capacity of over 900 megawatts. In 1995, they generated 2.87 billion kilowatt hours of electricity and returned to the U.S. Treasury

over $28.2 million in revenue from the sale of this power. This is in addition to the flood control and recreation benefits of these projects.

RECREATION

Our projects also provide recreational opportunities for the public. We annually accommodate about 100 million visitors at our 128 lakes and navigation pools. A Waterways Experiment Station study indicates $7.4 billion of economic impacts to the area in 1995.

INITIATIVES

Cost Reduction Initiatives for the Ohio River Navigation System

Modernization of the Ohio River Navigation System is the most aggressive program of its kind within the Corps of Engineers. The objectives in carrying out this program are to provide quality and timely navigation improvements while at the same time achieving significant savings in the cost of these improvements. A partnership of Corps designers and waterway users has been formed to evaluate new design, construction and operation concepts that permit project cost reductions, while maintaining high levels of service and reliability.

In-the-wet construction is one of the most promising construction techniques being evaluated. This innovative construction technique provides for precasting sections of the dam on land and then placing the sections in the river using a crane barge. This method would eliminate the requirement for constructing expensive cofferdams in the river, which could result in significant savings in the cost of the Olmsted Dam.

Innovative designs for new lock chambers are also being pursued. One design concept that shows promise for achieving cost savings, places the filling and emptying culverts in the sills of the locks. Traditional lock walls consist of a number of monoliths, each of which requires a large quantity of concrete to establish stability and provide culverts. The sill filling and emptying system eliminates the need for wall culverts, thereby allowing substantial reduction in lock wall construction costs. Model testing of such a filling and emptying system is underway at the Waterways Experiment Station.

Another innovate design under investigation involves the approach walls for the lock chambers. Rather than massive guard walls, floating or post and panel walls are being considered. Concrete requirements and costs would be reduced significantly by these concepts.

PARTNERING

Partnering with the navigation customers using the Ohio River system has been outstanding for well over 100 years. Recently, a partnering arrangement was developed with the navigation industry based on Quality Management principles. Working together, the Corps and industry leaders identified a need for more consistency on the "impounded" portion of the inland waterways -- particularly the Ohio and Mississippi Rivers upstream from St. Louis. Some 127 rules and regulations from seven Corps Districts and three Divisions were consolidated into one comprehensive document. Also, a consolidated mailing system was developed, annual navigation meetings for the Ohio and Mississippi Rivers are combined, and most recently, the "Navigation Information Connection" on the World Wide Web is being developed.

The Ohio River Division has a number of on-going very successful partnering efforts in support of flood protection projects. For example, partnering is on-going for projects under construction at West Columbus, Ohio, and Frankfort, Ky. Formal partnering agreements are in place with Williamsburg, Middlesborough and Salyersville, all in Kentucky, and with the city of Indianapolis, Ind. Partnering efforts are underway with the Metropolitan Sewer District of Louisville, Ky., to provide design, mapping and flood plain management services. Partnering in Metropolitan Nashville is currently underway with particular interest in the Metro Center Levee and surrounding areas. In these and other efforts, the Corps is participating in strong viable partnerships with states and local governments to provide infrastructure improvements in an efficient and cost effective manner, fully responsive to the citizens of these communities. A regional partnering meeting held last May in Louisville, Ky., provided a forum for our partners to meet with us and communicate their needs and expectations. We expect to continue these regional meeting annually.

A partnership between the Corps of Engineers, American Electric Power, and the Ohio Department of Natural Resources has resulted in the creation of a highly successful wetland near the Gavin, Ohio, power plant. Innovative treatment of acid mine run-off using waste fly ash from the power plant is resulting in a low cost solution to two environmental problems. At Berlin Lake in Ohio the Pittsburgh District has partnered with Viking Oil and Gas to not only protect and restore drilling sites, but to significantly improve the habitat through the creation of wetlands.

Environmental

Winfield Lock Replacement, Hazardous Waste Removal, West Virginia

The successful partnership of local residents, U.S. Environmental Protection Agency, the American Car Foundry (ACF), and the Huntington District has resulted in an expedited cleanup of a contaminated site at the Winfield L&D project in

Winfield W.Va. In August 1990, dioxin and other contaminant concentrations at the project site were found to exceed Environmental Protection Agency (EPA) standards. A Consent Decree between the former owner and the Government was signed by a Federal Judge in July 1995, allowing the former owner to haul the contaminated material to EPA approved landfills in Utah. The decree requires removal of the contaminated material from the site by April 5, 1996. Twelve train loads of material (approximately 100 cars each) have already left the site and been unloaded in Utah. It is estimated that it will take 15 trains of 100 cars each to complete the cleanup. The Department of Justice recovered $2 million from ACF as reimbursement for Government expenditures on the Winfield removal action.

Additional Partnering Efforts

A study to evaluate the effects of the U.S. Department of Agriculture's Best Management Practices on water quality in the Salt River Basin and Taylorsville Lake in Kentucky, is being done in partnership with several agencies including the Kentucky Division of Water, the U.S. Geological Survey, the Kentucky Division of Conservation, the University of Kentucky Cooperative Extension Service, and the Agricultural Stabilization and Conservation Service.

Working with the Tennessee Wildlife Resources Agency, stream habitat restoration structures will be constructed on the Caney Fork River below Center Hill Dam in Tennessee to remedy the scouring and plating of the river bottom caused by the extreme velocities from hydropower releases.

The Kentucky Department of Fish and Wildlife Resources and the Corps are working on plans to rebuild a severely eroded dike and provide slope protection at Duck Island in Trigg County, Ky. This will allow 439 acres to be managed for wildlife crops and native vegetation.

In cooperation with the Appalachian Region of the Office of Surface Mining under their Appalachian Clean Stream Initiative, ecosystems contaminated by acid mine drainage in the Ohio Basin are being evaluated and prioritized for restoration.

A formal partnership with the United States Geological Survey has been initiated to improve customer service by combining their scientific capabilities with Corps design, construction and project management experience.

U. S. ARMY CORPS OF ENGINEERS
CIVIL WORKS PROGRAM

CONGRESSIONAL SUBMISSION
FISCAL YEAR 1997

OHIO RIVER DIVISION

Budgetary information will not be released outside the Department of the Army until 18 March 1996.

Justification of Estimates for Civil Function Activities
Department of the Army, Fiscal Year 1996

OHIO RIVER DIVISION

Corps of Engineers

Table of Contents

	Page No.
	2
Surveys:	
Cheat River Basin, North Branch, Lick Run Environmental Restoration, WV	13
Conemaugh River Basin, Nanty Glo Environmental Restoration, PA	11
Green and Barren Rivers Navigation Disposition Study, KY	10
Kanawha River Navigation, WV	4
Lexington, Fayette County, KY	5
Metro Center Levee, Davidson County, TN	9
Metropolitan Cincinnati, Northern Kentucky, KY	6
Metropolitan Louisville, Beargrass Creek, KY	7
Metropolitan Louisville, Southwest, KY	8
Ohio River Main Stem Systems Study, KY, IL, IN, PA, WV, and OH	2
Tygart Valley River Basin, Grassy Run Environmental Restoration, WV	14
Wabash River Basin (Middle Reaches), IN and IL	15
Youghiogheny River Lake, Storage Reallocation, PA and MD	12
Preconstruction Engineering and Design:	
Indianapolis, White River (North), IN	19
Kentucky Lock, KY	16
London Locks and Dam, WV	17
Marmet Locks and Dam, WV	18
Metropolitan Louisville, Beargrass Creek, KY	21

OHIO RIVER DIVISION

Corps of Engineers

Table of Contents (Continued)

	Page No.
Construction:	
Barkley Dam and Lake Barkley, KY and TN	23
Beach City Lake, Muskingum River Lakes, OH	95
Dewey Lake, KY	103
Grays Landing Lock and Dam (Lock and Dam 7), Monongahela River, PA	99
Holes Creek, West Carrollton, OH	47
Johnstown, PA	67
Levisa and Tug Forks of the Big Sandy River and Upper Cumberland River, WV, VA, and KY	77
Locks and Dams 2, 3, and 4, Monongahela River, PA	81
McAlpine Locks and Dams, KY and IN	52
Metropolitan Louisville, Pond Creek, KY	43
Metropolitan Region of Cincinnati, Duck Creek, OH	23
Olmsted Locks and Dam, IL and KY	28
Robert C. Byrd Locks and Dam (formerly Gallipolis Locks and Dam), WV and OH	38
Saw Mill Run, Pittsburgh, PA	57
West Columbus, OH	33
Winfield Locks and Dam, WV	72
	62
Operations and Maintenance	107

Justification of Estimates for Civil Function Activities
Department of the Army, Corps of Engineers
Fiscal Year 1996

SUMMARY, OHIO RIVER DIVISION

	FY 1996 Allocation $	FY 1997 Request $	Increase or Decrease $
General Investigations			
Surveys	7,231,000	10,665,000	3,434,000
Preconstruction Engineering and Design	6,128,000	5,841,000	- 287,000
Subtotal, General Investigations	13,359,000	16,506,000	3,147,000
Construction, General			
Construction	104,214,000 1/	167,679,000 2/	63,465,000
Dam Safety Assurance	910,000	2,220,000	1,310,000
Subtotal, Construction, General	105,124,000	169,899,000	64,775,000
Operation and Maintenance			
Project Operation	135,585,000	141,254,000	5,669,000
Project Maintenance	98,721,000	86,734,000	-11,987,000
Subtotal, Operation and Maintenance, General	234,306,000	227,988,000	- 6,318,000
GRAND TOTAL, Ohio River Division	352,789,000	414,393,000	61,604,000

1/ Includes an estimated $39,845,000 to be derived from the Inland Waterways Trust Fund in FY 1996.

2/ Includes an estimated $71,422,000 to be derived from the Inland Waterways Trust Fund in FY 1997.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
1. SURVEYS - NEW: None.					
2. SURVEYS - CONTINUING:					
a. Navigation Studies.					
KENTUCKY					
Ohio River Main Stem Systems Study, KY, IL, IN, PA, WV, and OH	38,400,000	5,290,000	2,703,000	7,719,000	22,688,000

The study is an inland navigation systems analysis to address the level of investments needed to provide an efficient navigation system on the Ohio River Main Stem. The study will identify the operation and maintenance, major maintenance, major rehabilitation and new construction investment needs for the 20 navigation locks and dams along the Ohio River Main Stem and/or in the pools and channels controlled by these structures. These structures are crucial to the orderly development of navigation throughout the Ohio River Basin. As traffic grows on the Ohio River, several lock structures will experience increasing delays, which may be particularly severe during times of maintenance (when the existing chambers must be closed for routine or emergency repairs or accidents). Any closure of the main locks will result in severe traffic impacts. For the past ten years, traffic on the Ohio River has grown at an average annual rate of 4.2 percent. In 1992, total tonnage reached 227.5 million tons, reflecting a 46 percent increase over 1980.

The study will investigate the economic, social, and environmental impacts of both large scale investments and small scale improvements. Large scale improvements could include constructing a third lock chamber at certain facilities, lengthening existing 600' chambers to provide at least two 1200' chambers where justified, or provision of replacement locks and dams at older facilities (such as Elmsworth, Dashields, or Montgomery Locks and Dams). Small scale improvements could include installation of permanent mooring cells near lock approach points (which could enhance tow mooring in queuing situations and possibly speed up double-cut processing), providing spare lock gates, new procedures to speed up lock maintenance, and other infrastructure or procedural opportunities that could be identified during the study.

FY 1996 funds are being used to complete the Project Study Plan, continue the system-wide screening phase of the study with an emphasis on preparing a reliability/condition inventory of existing locks, develop the without-project condition, identify environmental restoration opportunities, and pursue prototype design development of the low-cost lock capacity additions.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Ohio River Main Stem Systems Study, KY, IL, IN, PA, WV, and OH (Continued)					

FY 1997 funds will be used to complete the screening level operation and maintenance cost profile, complete the prototype lock plans, develop a concept-level lock improvement economic analysis for a system, identify potential restoration sites, identify specific sites for more detailed studies, and continue prototype design development of the low-cost lock capacity additions. The completion dates for the systems study report and the Division Commander's notice are being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
WEST VIRGINIA					
Kanawha River Navigation, WV	11,700,000	10,535,000	594,000	400,000	171,000

The Kanawha River, a tributary of the Ohio River, has a total drainage area of about 12,300 square miles within southern West Virginia, southwestern Virginia, and a small portion of northwestern North Carolina. A nine-foot navigation channel is maintained along the lower 91 miles by Winfield, Marmet and London Locks and Dams on the Kanawha and Robert C. Byrd Locks and Dam on the Ohio River. The Kanawha River projects, nearly 60 years old, have small dual-chambered 360 foot by 56 foot locks that severely restrict the use of modern, efficient towing equipment. A new 800 foot by 110 foot lock is under construction at Winfield. The Marmet Interim Report, which was completed in December 1993, recommended construction of a new 800 foot by 110 foot lock. London tonnage has increased an average of 16 percent per year since 1985 and the anticipated increased demand for low sulfur coal could result in lockage congestion problems early in the next century. Shippers on the Kanawha River strongly support lockage improvements at Marmet and London Locks and Dams.

FY 1996 funds are being used to continue feasibility-level studies of London Locks and Dam, including engineering and design of alternatives and economic and environmental impact analysis, and to initiate the Kanawha River System Final Report. FY 1997 funds will be used to complete feasibility-level studies for London and to continue work on the Kanawha River System Final Report. This report will evaluate system traffic levels, channel capacities, and system environmental impacts and will summarize all prior interim outputs.

An interim feasibility report for Marmet Locks and Dam was completed in December, 1993. An interim report for London Locks and Dam is scheduled for completion in May, 1997. The completion date for the Kanawha River System Final Report is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
b. Flood Damage Prevention Studies.					
KENTUCKY					
Lexington, Fayette County, KY	400,000	0	251,000	149,000	0

The Lexington area study is centered in Fayette County, Kentucky. Fayette County covers an area of 285 square miles, had a 1990 estimated population of over 225,000, and is highly urbanized and expanding. The county area is located at the head waters of some seven streams that produce flooding problems in the area. South Elkhorn Creek, North Elkhorn Creek, Hickman Creek, Cave Run, Town Branch and Wolf Run all originate or flow through the area and drain to the bordering Kentucky River. The most recent major flooding occurred in June, July, and August, 1992, when three successive storms with maximum rainfall amounts estimated at a 50 year frequency rainfall occurred. An estimated 421 structures are within a 10-year frequency floodplain and over 645 structures are within the 100-year floodplain. Most of these structures were adversely impacted by the 1992 storms. Out of bank flood depths exceeded five feet, with three feet of floodwater on the first floor of residential structures. Part of the damage area includes the University of Kentucky campus. Damaging flood conditions occur on an annual basis. Flooding is compounded by the Karst topography and numerous sink holes that are unable to handle large storm volumes, resulting in out of bank stream flooding. Numerous letters from individuals over the past several years have requested assistance in resolving their flood problems. The study will investigate non-structural and structural solutions to these flooding problems.

Lexington Fayette Urban County Government, by letter dated May 17, 1994, has requested assistance in resolving its flood problems and expressed its understanding of and interest in cost sharing future efforts.

FY 1996 funds are being used to initiate the reconnaissance phase of the study. FY 1997 funds will be used to complete the reconnaissance report, scheduled for April, 1997.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
KENTUCKY					
Metropolitan Cincinnati, Northern Kentucky, KY	1,043,000	100,000	300,000	315,000	328,000

The northern Kentucky portion of the Cincinnati metropolitan area is comprised of three counties (Boone, Kenton, and Campbell) covering 563 square miles. The 1990 population of this area was 272,000. The three counties are located along the left bank of the Ohio River opposite the City of Cincinnati. A major tributary to the Ohio River, the Licking River, forms the boundary line between the two most populous counties (Kenton and Campbell) and the two largest cities (Covington and Newport) in northern Kentucky. In 1964, a major flood on the Ohio and Licking Rivers caused extensive damage. Other significant flooding on these rivers occurred in 1978, 1984, and 1985. Flooding along Banklick Creek, the largest Kenton County tributary to the Licking River, severely damaged a major public recreation area and other private property and caused one death. Based on a February, 1995 limited scope reconnaissance study, the recurrence of a 100-year frequency flood on the Ohio River would result in $20 million damage to the City of Silver Grove in Campbell County. Significant water resources related problems also exist in the Gunpowder Creek watershed in Boone County.

By letter dated February 23, 1993, the County Judges/Executives of the three counties requested assistance with flooding problems in their jurisdictions and expressed willingness to cost share feasibility phase studies. Likely solutions involve detention/retention structures, other traditional structural flood protection measures, and non-structural flood protection measures.

FY 1996 funds are being used to complete the reconnaissance phase of the study. If the reconnaissance report is certified to be in accord with policy, FY 1997 funds will be used to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,286,000, which is to be shared on a 50-50 percent basis by the Federal Government and the non-Federal sponsor. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,686,000
Reconnaissance Phase (Federal)	400,000
Feasibility Phase (Federal)	643,000
Feasibility Phase (Non-Federal)	643,000

The reconnaissance phase is scheduled for completion in December, 1996. The Feasibility Cost Sharing Agreement is scheduled to be signed in January, 1997. The dates for completion of the feasibility report and for the Division Commander's notice are being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
KENTUCKY					
Metropolitan Louisville, Beargrass Creek, KY	1,310,000	922,000	308,000	80,000	0

Beargrass Creek is a tributary of the Ohio River in Jefferson County, Kentucky. Approximately 26 percent of the county's population resides in the Beargrass Creek Basin. In recent years, the great majority of the 60.9 square mile drainage basin has been developed. The value of development in the study area is over $500,000,000. Stream reaches of the Middle Fork of Beargrass Creek are subject to inundation as a result of insufficient in-bank flowage areas and increased runoff from upstream development. Upstream industrial, commercial, and residential development also have contributed to increased storm runoff and flooding on South Fork Beargrass Creek. Major floods occurred in the basin in 1960, 1964, 1970, and 1973. Based on October, 1995 prices and conditions, a 100-year frequency flood occurring in the basin in 1993 would damage 882 structures and would result in approximately $25 million in damages. Average annual damages for the basin are estimated at $2.1 million, based on 1993 survey data. The reconnaissance study evaluated opportunities for flood control improvements on both Middle and South Forks within the basin. The study identified four feasible alternatives, consisting of detention basins on the South Fork, that are being evaluated further in the feasibility phase. The feasibility study is evaluating other potential alternative sites, optimizing the feasible plans identified in the reconnaissance study, and incorporating environmental features into the project designs.

The Louisville and Jefferson County Metropolitan Sewer District (MSD) is the study cost-sharing sponsor. The Feasibility Cost Sharing Agreement was executed on July 25, 1994.

FY 1996 funds are being used to continue the feasibility phase of the study. FY 1997 funds will be used to complete the feasibility phase of the study. The cost of the feasibility phase is $1,500,000, which is being shared on a 50-50 percent basis by the Federal Government and the non-federal sponsor. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,060,000
Reconnaissance Phase (Federal)	560,000
Feasibility Phase (Federal)	750,000
Feasibility Phase (Non-Federal)	750,000

The feasibility report is scheduled for completion in February, 1997, and the Division Commander's notice is scheduled for March, 1997.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
KENTUCKY					
Metropolitan Louisville, Southwest, KY	1,508,000	395,000	105,000	262,000	746,000

The study area encompasses a drainage area of approximately 20 square miles, including the west and south ends of Louisville, Kentucky. The highly urbanized floodplain includes the campus of the University of Louisville and the historic Churchill Downs race course. The frequency of flooding has increased recently in the area as a result of stream bank and combined storm sewer overflows. The expansion of the Kentucky Fair and Exposition Center, the reconstruction and widening of the Watterson Expressway, and airport expansion at Standiford Field appear to have contributed to the increased runoff and frequency of flooding problems in these areas. Components of the existing local flood protection project are inadequate at high Ohio River stages. Flooding occurred in the study area in 1983, 1989, and most recently in August, 1992, when loss of life occurred. Media reports indicate that in excess of $3,000,000 in damages resulted from the 1983 event. The Metropolitan Louisville, Southwest interim reconnaissance study currently is underway. It will evaluate opportunities for flood control and water quality improvements within the study area.

The Louisville and Jefferson County Metropolitan Sewer District (MSD), which is currently cost sharing two other Louisville District flood control studies, has indicated by letter dated July 29, 1993, that flooding in Southwest Louisville is one of its priority problem areas. MSD understands the two phase planning process and has expressed a willingness to cost share the feasibility phase of study. Measures to be considered will include, but not be limited to, the use of detention/retention basins and modifications to a pump plant built by the Corps of Engineers.

If the reconnaissance report is certified to be in accord with policy, FY 1996 funds will be used to continue into the feasibility phase of study, and FY 1997 funds will be used to continue the feasibility phase of the study. The estimated cost of the feasibility phase is $2,016,000, which is to be shared on a 50-50 basis by the Federal Government and non-Federal sponsor. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,516,000
Reconnaissance Phase (Federal	500,000
Feasibility Phase (Federal)	1,008,000
Feasibility Phase (non-Federal)	1,008,000

The reconnaissance report is scheduled for completion in May, 1996. The Feasibility Cost Sharing Agreement is scheduled for October 1996. The dates for feasibility report completion and the Division Commander's notice are being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
TENNESSEE					
Metro Center Levee, Davidson County, TN	$990,000	364,000	296,000	330,000	0

Metro Center is a commercial development in the flood plain of the Cumberland River in Nashville, Davidson County, Tennessee. This complex was developed in the early 1980s and contains about 50 structures with an estimated value of $450 million. A 3.1 mile long municipal levee protects this complex from flooding. A joint inspection trip made in early 1993 by Corps and Metropolitan Nashville Public Works officials revealed that the municipal levee has a high potential for failure. The project has inadequate cross sections and generally fails to meet Corps design standards. The current top of the levee is slightly above the 100 year flood, but the levee is known to have seepage problems (boils and slumps in the levee) and its structural stability is questionable. All of these factors indicate a lack of structural reliability. If failure occurs, there would be in excess of $120 million in damages. Metropolitan Nashville's current administration understands its cost sharing responsibilities and has expressed a strong interest in this project by its letter of intent, dated May 31, 1994.

FY 1996 funds are being used in part to complete the reconnaissance phase of the study. If the reconnaissance report is certified to be in accord with policy, remaining FY 1996 funds will be used to continue into the feasibility phase and FY 1997 funds will be used to complete the feasibility phase. The estimated cost of the feasibility phase is $1,080,000, which is to be shared on a 50-50 percent basis by the Federal Government and the non-Federal Sponsor. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1530,000
Reconnaissance Phase (Federal)	450,000
Feasibility Phase (Federal)	540,000
Feasibility Phase (Non-Federal)	540,000

The reconnaissance report was completed in February, 1996. The feasibility report is scheduled for completion in August, 1997, and the Division Commander's notice is scheduled for September, 1997.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
c. Shoreline Protection Studies: None.					
d. Special Studies.					
KENTUCKY					
Green and Barren Rivers Navigation Disposition Study, KY	430,000	0	50,000	380,000	0

The Green River, a tributary to the Ohio River, has a total drainage area of approximately 9,230 square miles in central and western Kentucky. Seven locks and dams were constructed between 1835 and 1905 to maintain a nine foot deep navigation channel in the lower 103 miles of the Green River and a 5.5 foot depth in the rest of the Green River and the lower 20 miles of its Barren River tributary. Since the 1965 failure of Dam 4 and resulting loss of pool, commercial navigation has been ongoing only in the reach of the Green River serviced by Locks & Dams 1 and 2. The locks & dams on the Green River and Barren River above Lock & Dam 2 are in a caretaker status, at significant annual costs to the Corps. However, other than at Lock & Dam 3, the pools associated with locks & dams in the upper portion of the basin still provide opportunities for recreation and serve as a water supply source for a number of communities, utilities, and industries. Lock and Dam 6 on the Green River has tailwater impacts on the Corps operated Nolin Lake flood control reservoir and on the Mammoth Cave National Park. A feasibility report completed by the Corps in 1993 concluded that modernization and improvement of the upper locks & dams on the Green & Barren River system is not economically viable. Portions of this 1993 document serve as the initial appraisal report for this study. This study will evaluate the status of Green River Locks & Dams 3 through 6 and Barren River Lock and Dam 1 and recommend whether continued caretaker status is warranted or whether the projects should be deauthorized. Impacts of the system on associated water resource uses such as water supply and recreation will be evaluated. Sufficient information to support federal legislation will be included.

FY 1996 funds are being used to initiate the study. FY 1997 funds will be used to complete the study and prepare a report, scheduled for July, 1997.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1997

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
PENNSYLVANIA					
Conemaugh River Basin, Nanty Glo Environmental Restoration, PA	753,000	503,000	200,000	50,000	0

The Conemaugh River Basin encompasses 1,372 square miles in the Kiskiminetas River Basin and includes Conemaugh River Lake. The basin includes parts of Cambria, Somerset, Indiana, and Westmoreland counties. A reconnaissance report completed in February, 1994 investigated water resources problems and opportunities in the basin, including flood damage reduction and environmental restoration. No economically feasible solution to the flood problems in the basin was identified. However, seven environmental restoration sites that have been severely degraded by bituminous coal mining activities were identified as candidates for cost-shared feasibility studies. In March, 1995, a concept plan was completed for restoration of environmental degradation from the Webster Mine Discharge at Nanty Glo, Pennsylvania, the first significant acid mine drainage discharge downstream from the headwaters of the South Branch, Blacklick Creek. Drainage from this discharge and two adjacent refuse piles effectively "kills" the South Branch Blacklick Creek below Pergrin Run. Sampling data indicate that the Webster Mine may account for approximately 94 percent of the acid load in the South Branch, Blacklick Creek and 5 percent of the acid load exiting the dam outlet at Conemaugh River Lake.

The Cambria County Conservation and Recreation Authority, by letter dated June 14, 1994, indicated its interest in the Nanty Glo feasibility study and the intent to enter into a Feasibility Cost Sharing Agreement. Specific authority to pursue investigations and implement environmental restoration projects within the Conemaugh River Basin exists in Section 331 of the Water Resources Development Act of 1992, Public Law 102-580.

FY 1996 funds were used to complete the reconnaissance phase and are being used to continue into the feasibility phase. The reconnaissance report was certified to be in accord with policy in January, 1996. FY 1997 funds will be used to complete the feasibility phase of the study. The estimated cost of the feasibility phase is $450,000, which is to be shared on a 50-50 percent basis by the Federal Government and the non-Federal sponsor. Up to one-half of the non-Federal share will be in kind services. A summary of cost sharing is as follows:

Total Estimated Study Cost	$ 978,000
Reconnaissance Phase (Federal)	528,000
Feasibility Phase (Federal)	225,000
Feasibility Phase (Non-Federal)	225,000

Completion of the feasibility report is scheduled for August, 1997 and the Division Commander's notice is scheduled for September, 1997.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
PENNSYLVANIA					
Youghiogheny River Lake, Storage Reallocation, PA and MD	375,000	0	200,000	175,000	0

The Municipal Authorities of Westmoreland County and North Fayette County currently obtain a large portion of their untreated water from the Youghiogheny River. The operation of these systems is currently regulated by the Pennsylvania Department of Environmental Resources (PADER), which establishes a maximum daily withdrawal limit based upon minimum acceptable river flows to ensure that the water quality and low flow augmentation purposes of Youghiogheny Lake are not compromised. As a result of increasing water demand and recent regional drought conditions, PADER has directed these water companies to secure additional storage to provide the needed supplemental releases during periods of low flow and high demand. The water companies have requested the Corps of Engineers to explore the potential for reallocating a portion of the Youghiogheny Lake storage for water supply. FY 1993 Operation and Maintenance, General funds were used to prepare an initial assessment, which indicates the possibility of some amount of reallocation and operational modifications.

The study will include a thorough review of the current operating schedule for the Youghiogheny project. The work also will involve profiling existing and projected water demand and recent changes in land use that may affect water quality. The current operating practices of the licensed public water supply systems in the area and the constraints imposed by their water allocation permits will be examined. Storage reallocation and other alternative strategies to optimize the effective use of this water resource will be evaluated in the context of the authorized project purposes and balanced against recent changes in the river basin. Identification and modeling of the full range of expected impacts, both at the lake and downstream, will be undertaken, including the study of specific effects upon water quality, recreation, hydropower, and natural and cultural resources.

The Commonwealth of Pennsylvania and the municipal water authorities, by letters dated June 18, 1992 and May 20, 1992, respectively, have indicated an interest in cost sharing the feasibility phase of the study. Both authorities also have indicated a willingness to pay the costs of any additional storage that could be allocated to water supply.

FY 1996 funds are being used to initiate the reconnaissance study. FY 1997 funds will be used to complete the reconnaissance report, currently scheduled for January, 1997.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1997

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
WEST VIRGINIA					
Cheat River Basin, North Branch, Lick Run Environmental Restoration, WV	945,000	380,000	65,000	350,000	150,000

Lick Run flows into the Cheat River at Cheat River Mile 36.0 and is in Preston County, in northeastern West Virginia. The North Branch of Lick Run has a drainage area of 0.9 square mile. A reconnaissance study initiated in November, 1994 evaluated the Cheat River Basin for flood control and environmental restoration opportunities and identified environmental degradation problems in the North Branch of Lick Run. As a result of extensive coal mining activities in the earlier part of this century, acid mine drainage in this stream has resulted in water quality degradation, destruction of habitat, and declining populations of fishery and invertebrate aquatic resources. The principal source of acid mine drainage in the North Branch of Lick Run is surface and underground drainage from an abandoned surface mine in the upper basin. The acid mine drainage problem extends well into the Cheat River, which contributes approximately 60 percent of the acid loads to the Monongahela River.

The West Virginia Division of Environmental Protection, by letter dated December 29, 1994, indicated an interest in cost sharing the feasibility study.

FY 1996 funds are being used to complete the reconnaissance phase of the study. If the reconnaissance report is certified to be in accord with policy, funds requested for FY 1997 will be used to continue into the feasibility phase. The estimated cost of the feasibility study is $1,000,000, which is to be shared on a 50-50 percent basis by the Federal Government and non-Federal sponsor. Up to one half of the non-Federal share may be in-kind services. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$1,445,000
Reconnaissance Phase (Federal)	445,000
Feasibility Phase (Federal)	500,000
Feasibility Phase (non-Federal)	500,000

The Cheat River Basin reconnaissance report was completed in December, 1995. The dates for completion of the feasibility report and for the Division Commander's notice are being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
WEST VIRGINIA					
Tygart Valley River Basin, Grassy Run Environmental Restoration, WV	1,087,000	587,000	0	350,000	150,000

Grassy Run is a small tributary of the Tygart Valley River with a drainage area of approximately four square miles lying entirely within Randolph County, WV. The reconnaissance study, initiated in October, 1994, evaluated the entire Tygart Valley River Basin for flood control and environmental restoration opportunities and identified environmental degradation problems in the Grassy Run Watershed. Pollution of the stream by acid mine drainage is the result of extensive mining for coal, both surface and underground, decades ago. This pollution has resulted in poor water quality, habitat destruction, and degradation of the ecosystem of the Tygart Valley River. Water treatment for the Cities of Belington and Philippi has been made more costly by the acidic water and suspended metals. The water quality of Tygart River Lake, a Corps of Engineers multiple purpose reservoir project, also is adversely affected by acid mine drainage. During periods of drought in the larger basin, mine-based flows from Grassy Run may exceed the flow in the river. This requires the West Virginia Division of Environmental Protection (WVDEP) to add acid-neutralizing chemicals to the stream, at considerable expense, to avoid extensive watershed degradation. An environmental restoration project would stimulate the ecological recovery of Tygart Lake, reduce Federal project operation and maintenance costs, and lower costs associated with local water supply and emergency low-flow treatment measures. The WVDEP, by letter dated December 29, 1994, expressed interest in being a cost-sharing sponsor for the feasibility study.

FY 1995 funds are being used to complete the reconnaissance phase of the study. If the reconnaissance report is certified to be in accord with policy, funds requested for FY 1997 will be used to continue into the feasibility phase of the study. The estimated cost of the feasibility phase is $1,000,000, which is to be shared on a 50-50 percent basis by the Federal and non-Federal sponsor. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,587,000
Reconnaissance Phase (Federal)	587,000
Feasibility Phase (Federal)	500,000
Feasibility Phase (Non-Federal)	500,000

The reconnaissance report was completed in October, 1995. The dates for completion of the feasibility report and for the Division Commander's notice are being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
e. Comprehensive Studies.					
INDIANA					
Wabash River Basin (Middle Reaches), IN and IL	1,116,000	923,000	88,000	105,000	0

The Wabash River Basin (Middle Reaches) study area lies in west-central Indiana along the Indiana-Illinois border and includes the Wabash River from Sullivan County to Tippecanoe County and adjacent counties to the east. The reconnaissance study, which was initiated in March 1990, was oriented towards evaluating the adequacy of existing agricultural levees with low levels of protection. Early in the study, landowners and local officials requested that the study focus on solving flood problems in concert with restoring the fish and wildlife resources and wetlands in the Greenfield Bayou area of Vigo County. Average annual flood damages in the Greenfield Bayou study area are estimated at $1,660,000 at October, 1994 price levels. The reconnaissance report recommended a feasibility study for a project on Greenfield Bayou consisting of an agricultural levee and environmental restoration.

Negotiations with the Indiana Department of Natural Resources and local interests for a cost shared study were initiated in late 1991 and completed in April, 1993, when Vigo County signed the Feasibility Cost Sharing Agreement.

FY 1996 funds are being used to continue the feasibility phase of the study and FY 1997 funds will be used to complete the feasibility phase of the study. The estimated cost of the feasibility phase is $1,064,000, which is being shared on a 50-50 percent basis by the Federal Government and the non-Federal sponsor. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,648,000
Reconnaissance Phase (Federal)	584,000
Feasibility Phase (Federal)	532,000
Feasibility Phase (Non-Federal)	532,000

The reconnaissance report was completed in April, 1993. The feasibility report is scheduled for completion in August, 1997, and the Division Commander's notice is scheduled for September, 1997.

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
3. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - NEW: None.					
4. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - CONTINUING:					
a. Navigation.					
KENTUCKY					
Kentucky Lock, KY	11,500,000	4,500,000	2,000,000	3,000,000	2,000,000

The Kentucky Lock and Dam project is located in Livingston County, Kentucky on the Tennessee River, 22.4 miles above its confluence with the Ohio River. The existing lock is 110 feet by 600 feet, has a lift of 56 feet, and was placed in operation in 1942. A canal connects the Tennessee and Cumberland River systems just upstream of the Kentucky Lock and of Barkley Lock on the Cumberland River. A 110 foot by 800 foot lock exists at Barkley Dam. Due to poor navigation conditions and higher costs to use the narrow lower Cumberland River, the vast majority of traffic uses the Kentucky Lock and lower Tennessee River. This causes congestion and long delays at Kentucky Lock. Delays are increased when either Kentucky or Barkley Lock is closed for maintenance. Neither lock is compatible with neighboring 1200 foot locks on the Ohio River and the majority of tows must be broken into two lockages to traverse the system. During 1992-94, an average of over 37.4 million tons of commodities passed through the Kentucky-Barkley system. In recent years the tows at Kentucky experienced 5 hour delays plus double lockage requirements. By 2005, traffic demand will reach 53 million tons, creating even further delays for the existing lock system. The Feasibility Report, dated June, 1992, recommends construction of an additional 110 foot by 1200 foot lock landward of the existing Kentucky Lock. A Limited Reevaluation Report was approved in November, 1995. The project cost is estimated at $395,000,000 with average annual net economic benefits of $32,600,000 attributable to navigation. The benefit to cost ratio is 2.4 to 1 based on an interest rate of 7 3/4 percent.

The project is not authorized for construction. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, 50 percent of the costs of construction would be derived from the Inland Waterways Trust Fund.

FY 1996 funds are being used to continue preconstruction engineering and design (PED). FY 1997 funds will be used to continue PED, which will include design memorandums, modeling by the U.S. Army Engineer Waterways Experiment Station, foundation exploration activities, and transmission tower plans and specifications. The completion date for preconstruction engineering and design is being determined.

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
WEST VIRGINIA					
London Locks and Dam, WV	2,295,000	0	0	366,000	1,929,000

The Kanawha River, a tributary of the Ohio River, has a total drainage area of approximately 12,300 square miles within southern West Virginia, southwestern Virginia, and a small portion of northwestern North Carolina. A nine-foot navigation channel is maintained along the lower 91 miles by Winfield, Marmet, and London Locks and Dams on the Kanawha and Robert C. Byrd Locks and Dam on the Ohio River. The Kanawha River projects, now over 50 years old, have small dual-chambered 360-foot by 56-foot locks that severely restrict the use of modern, efficient towing equipment. Traffic at London was approximately 7.5 million tons in 1993, much of which is coal produced in south central West Virginia. Future lockage delays could increase significantly at London with the construction of a new lock at Winfield and a potential new lock at Marmet. Increases in the demand for low sulphur coal because of clean air legislation could affect long term traffic projections for London. The recommended plan is the National Economic Development plan and consists of a 40-foot extension of the existing landward lock chamber. The estimated project cost is $25,000,000 and average annual economic benefits attributable to navigation are $1,000,000. The benefit to cost ratio is 4 to 1 based on an interest rate of 7 3/4 percent. The navigation industry and the shippers on the Kanawha River support the recommended plan.

The project is not authorized for construction. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, 50 percent of the costs of construction would be derived from the Inland Waterways Trust Fund.

The interim feasibility report for London Locks and Dam is scheduled for completion in May, 1997. FY 1997 funds will be used to continue into preconstruction engineering and design, which will include geology and real estate design memorandums and modeling by the U.S. Army Engineer Waterways Experiment Station. The date for completion of preconstruction engineering and design is being determined.

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
WEST VIRGINIA					
Marmet Locks and Dam, WV	9,700,000	4,706,000	3,144,000	1,850,000	0

The Kanawha River, a tributary of the Ohio River, has a total drainage area of approximately 12,300 square miles within southern West Virginia, southwestern Virginia, and a small portion of northwestern North Carolina. A nine-foot navigation channel is maintained along the lower 91 miles by Winfield, Marmet and London Locks and Dams on the Kanawha and Robert C. Byrd Locks and Dam on the Ohio River. The Kanawha River projects, now over 50 years old, have small dual-chambered 360 foot by 56 foot locks that severely restrict the use of modern, efficient towing equipment. A new 800 foot by 110 foot lock is under construction at Winfield. Lockages and delays have significantly increased at Marmet Locks and Dam and serious congestion problems now are occurring. The recommended plan is the National Economic Development plan, and consists of an additional lock landward on the right ascending bank and continued use of the existing lock chambers as auxiliary locks. The estimated project cost is $229,600,000, with average annual economic benefits of $32,984,000 attributable to navigation. The benefit to cost ratio is 2.8 to 1 based on an interest rate of 7 3/4 percent. The navigation industry and the shippers on the Kanawha River support the recommended plan.

The project is not authorized for construction. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, 50 percent of the costs of construction would be derived from the Inland Waterways Trust Fund.

An interim feasibility report was completed in December, 1993. FY 1996 funds are being used to continue preconstruction engineering and design for the new lock, including design memorandums for geology, foundations, lock design, and real estate. FY 1997 funds will be used to complete work on the design memorandums and plans and specifications for the first construction contract. Preconstruction engineering and design is scheduled for completion in September, 1997.

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
b. Flood Control.					
INDIANA					
Indianapolis, White River (North), IN	525,000	0	50,000	475,000	0

The City of Indianapolis is located in Marion County in central Indiana. Marion County covers an area of 396 square miles and had an estimated population of 797,000 in 1993. The White River, with a drainage area of over 1,600 square miles at Indianapolis, flows southwesterly through Marion County. Urban expansion in Hamilton County to the north and Hancock County to the east is impacting hydrologic characteristics of the urbanized watersheds in Marion County. The recent flooding of January, 1991 forced evacuation of 500 to 600 homes and damaged many more. Flooding of roadways caused severe damage and loss of access, and several serious injuries were reported. Based on current flood damage survey data, a 100-year flood event would cause damages of $80,800,000, at October, 1995 price levels, in the primary study area. The recommended plan will consist of a combination of concrete I-wall and earthen levee flood protection along approximately 4.7 miles of the east bank of the White River in Indianapolis. Other project components include a 1.8 mile recreation trail, four environmental restoration sites, totaling 41.1 acres, consisting of reforestation through the planting of native hardwood trees and wetland species, and rehabilitation of an existing pump station. Total project cost is estimated at $16,600,000, cost shared $8,300,000 Federal and $8,300,000 non-Federal. Non-Federal annual operation and maintenance costs are estimated at $21,000. The benefit-cost ratio is 2.2 to 1 at an interest rate of 7 3/4 percent, based on an economic analysis dated September, 1994.

The local sponsor, the City of Indianapolis, strongly supports the project, as evidenced by its participation in the feasibility phase of the project study. The Feasibility Cost Sharing Agreement was executed on March 4, 1993.

The project was authorized for construction by the Flood Control Acts of June 22, 1936 and July 24, 1946. In accordance with the cost sharing and financing concepts currently being proposed by the Department of the Army and being discussed between the Administration and the Congress, local interests will be required to provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas; modify or relocate utilities, roads, bridges, (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent of the costs allocated to flood control in cash during the period of construction; contribute an additional amount in cash or credits to bring the total non-federal share of costs allocated to structural flood control to 50 percent; and bear all costs of operation, repair, replacement, and maintenance of flood control facilities.

23-577 96-35

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

Indianapolis, White River (North), IN (Continued)

Communities must agree to adopt additional flood plain management activities, beyond the current requirement to participate in the National Flood Insurance Program, in order to qualify for Federal participation in a structural flood damage reduction project under the terms as described above. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of stormwater runoff, and preservation of open space.

FY 1996 funds are being used to complete the feasibility report, currently scheduled for April, 1996, and will be used to initiate preconstruction engineering and design, consisting of a value engineering study and plans and specifications for the pump station, levee and floodwall. FY 1997 funds will be used to complete the value engineering study and plans and specifications for the pump station, levee and floodwall. Preconstruction engineering and design is scheduled for completion in September, 1997.

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
KENTUCKY					
Metropolitan Louisville, Beargrass Creek, KY	900,000	0	0	150,000	750,000

Beargrass Creek is a tributary of the Ohio River and is located in Jefferson County, Kentucky. Approximately 26 percent of the county's population resides in the Beargrass Creek Basin. In recent years, the great majority of the 60.9 square mile basin has been developed. The value of development in the study area is conservatively estimated at $500,000,000. Stream reaches of the Middle Fork of Beargrass Creek are subject to inundation as a result of insufficient in-bank flowage areas and increased runoff from upstream development. Upstream industrial, commercial, and residential development also has contributed to increased storm runoff and flooding on South Fork Beargrass Creek. Major floods occurred in the basin in 1960, 1964, 1970, and 1973. Based on October, 1995 prices and conditions, a 100-year frequency flood in the basin would result in approximately $25 million in damages to 830 structures. The tentatively recommended plan consists of a combination of detention basins, channel improvements, floodwalls, and levees on the South Fork of Beargrass Creek and Buechel Branch. The average annual benefits amount to $1,200,000, all for flood damage reduction. Total project cost is estimated at $10,250,000, with an estimated Federal share of $5,125,000 and an estimated non-Federal share of $5,125,000. Non-Federal annual operation and maintenance costs are estimated at $65,000. The benefit-cost ratio is 1.3 to 1 at an interest rate of 7 3/4 percent, based on an economic analysis dated September, 1994. The local sponsor, the Louisville and Jefferson County Metropolitan Sewer District (MSD), strongly supports the project, as evidenced by its cost sharing and participation in the feasibility phase of the project study. The Feasibility Cost Sharing Agreement with MSD was executed on July 25, 1994.

The project is not authorized for construction. In accordance with the cost sharing and financing concepts currently being proposed by the Department of the Army and being discussed between the Administration and the Congress, local interests will be required to provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas; modify or relocate utilities, roads, bridges, (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent of the costs allocated to flood control in cash during the period of construction; contribute an additional amount in cash or credits to bring the total non-federal share of costs allocated to structural flood control to 50 percent; and bear all costs of operation, repair, replacement, and maintenance of flood control facilities.

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

Metropolitan Louisville, Beargrass Creek, KY (Continued)

Communities must agree to adopt additional flood plain management activities, beyond the current requirement to participate in the National Flood Insurance Program, in order to qualify for Federal participation in a structural flood damage reduction project under the terms as described above. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of stormwater runoff, and preservation of open space.

FY 1996 funds are being used to continue the feasibility study. FY 1997 funds will be used to complete the feasibility report, currently scheduled for February, 1997, and to continue into PED by initiating preparation of plans and specifications. Preconstruction engineering and design (PED) will be financed 75 percent Federal and 25 percent non-Federal. The completion date for PED is being determined.

c. Shoreline Protection: None.

d. Multiple Purpose Power: None.

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Metropolitan Louisville, Pond Creek, Kentucky (New)

LOCATION: The project is located in the central and eastern portions of the 126 square mile Pond Creek watershed, in southern Jefferson County, Kentucky.

DESCRIPTION: The project consists of construction of detention basin storage at the Melco Detention Basin on Northern Ditch and the Vulcan Quarry Detention Basin on Fishpool Creek; channel enlargement along approximately 2.4 miles of Pond Creek and 1.5 miles of Northern Ditch; a multipurpose maintenance road/hiking trail along the Pond Creek channel improvement; and a fifteen acre wetlands environmental restoration component at a site owned by the local sponsor. All work is programmed.

AUTHORIZATION: The project is budgeted for initiation of construction under proposed legislation.

REMAINING BENEFIT-REMAINING COST RATIO: 3.58 to 1 at 7 3/4 percent.

TOTAL BENEFIT-COST RATIO: 2.66 to 1 at 7 3/4 percent.

BASIS OF BENEFIT COST RATIO: Benefits are from the Project Design Memorandum, dated May, 1995, at 1995 price levels.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		$ 8,471,000
Estimated Non-Federal Cost		$ 8,339,000
Cash Contribution	$ 4,221,000	
Other Costs	4,118,000	
Total Estimated Project Cost		$16,810,000

STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	22	Being Determined

PHYSICAL DATA	
Channel Improvement	3.9 miles
Detention Basin Storage	2 @ 1,600 acre/ft
Wetlands Env. Restoration	15 acres
Maint. Rd/Hike-Bike Trail	3.4 miles
Permanent Easements	65.7 acres

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT OF EST. FED. COST
Allocations to 30 September 1995	931,000	
Conference Allowance for FY 1996	300,000	
Allocation for FY 1996	222,000 1/	
Allocations through FY 1996	1,153,000	14
Allocation Requested for FY 1997	3,089,000	50
Programmed Balance to Complete after FY 1997	4,229,000	
Unprogrammed Balance to Complete after FY 1997	0	

1/ Reflects a $78,000 reduction assigned as savings and slippage.

JUSTIFICATION: The project is located in southwestern Jefferson County, Kentucky and drains an area of approximately 71 square miles. Approximately 5,500 structures are located within the highly urbanized Pond Creek flood plain. Due to rapid residential and commercial development within the area, properties along Pond Creek and tributaries now have only a two year level of protection, leaving residential, commercial, and industrial structures vulnerable to disastrous flash floods. The flood of record occurred in March, 1964. A recurrence of this flood today would result in damages of approximately $106.0 million, under 1995 price levels and conditions of development. The most recent flood experienced in the basin, a five-year event, occurred in February, 1990 and caused damages to residential and commercial properties in the basin that totalled approximately $1 million.

Average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$ 3,999,000
Recreation	76,000
Total	$ 4,075,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate Lands and Damages Federal Administration	$ 52,000
Initiate Channels and Canals	2,838,000
Initiate Fish and Wildlife Facilities	14,000
Planning, Engineering, and Design	31,000
Construction Management	154,000
Total	$ 3,089,000

NON-FEDERAL COSTS: In accordance with legislation proposed by the Administration, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments during Construction and Reimbursements	Annual Operation, Maintenance, Repair, Replacement, and Rehabilitation Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	3,719,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	399,000	
Pay approximately 24.6 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 50 percent and bear all costs of operation, maintenance, repair, replacement, and rehabilitation of flood control facilities.	3,973,000	68,000
Pay one-half of the separable costs allocated to recreation and bear all costs to operate, maintain, repair, replace, and rehabilitate recreation facilities.	197,000	1,000
Pay approximately 19.5 percent of the costs allocated to environmental restoration to bring the total non-Federal share of environmental restoration costs to 25 percent and bear all costs of operation, maintenance, repair, replacement, and rehabilitation of environmental restoration facilities.	51,000	1,000
Total Non-Federal Costs	$ 8,339,000	$ 70,000

NON-FEDERAL COSTS (Continued):

The non-Federal sponsor will be required to make all payments concurrently with project construction.

Floodplain Management Requirement

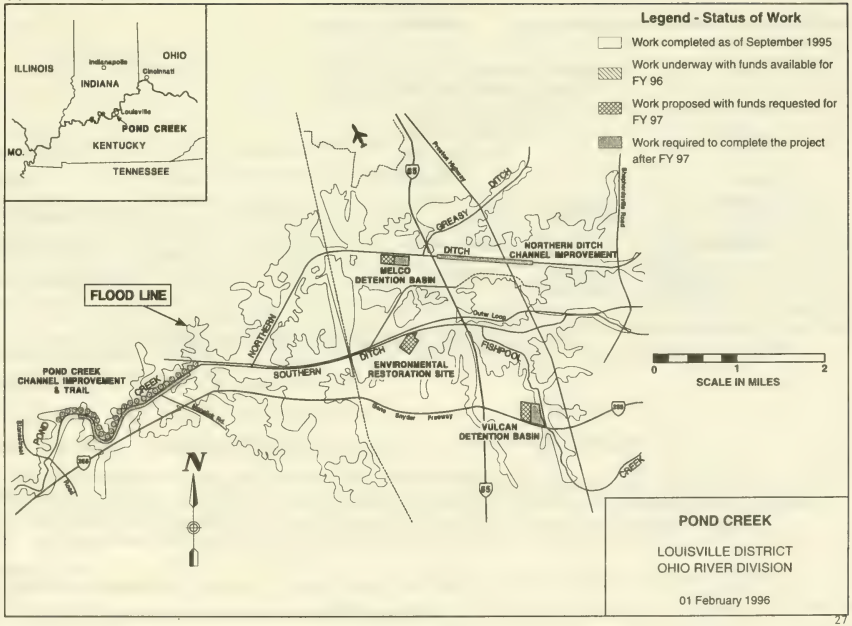
Communities must agree to adopt additional flood plain management activities, beyond the requirement to participate in the National Flood Insurance Program, to qualify for Federal participation in a structural flood damage reduction project. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of storm water runoff, and preservation of open space.

STATUS OF LOCAL COOPERATION: The non-Federal cost sharing partner is the Louisville and Jefferson County Metropolitan Sewer District (MSD). The MSD participated in the Feasibility Study for the Pond Creek project and has filed a Letter of Intent and Financial Capability Statement regarding its intention to cost share in the project. MSD also has furnished a copy of its Operating and Capital Budget Plan, which contains funding provisions for the project. The Project Cooperation Agreement is scheduled for execution in October, 1996.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $ 8,471,000 is the first estimate presented to Congress for construction (FY 1997).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment and a Finding of No Significant Impacts (FONSI) have been signed and were included in the Interim Feasibility Report, dated March, 1994. In addition, a Section 404(b)(1) Evaluation has been completed and a 401 Water Quality Certification has been obtained from the Kentucky Division of Water.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1994.


Legend - Status of Work
Work completed as of September 1995
Work underway with funds available for FY 96
Work proposed with funds requested for FY 97
Work required to complete the project after FY 97
ILLINOIS
INDIANA
OHIO
Indianapolis
Cincinnati
Louisville
POND CREEK
KENTUCKY
MO.
TENNESSEE
FLOOD LINE
POND CREEK CHANNEL IMPROVEMENT & TRAIL
NORTHERN
SOUTHERN
DITCH
GREASY
DITCH
NORTHERN DITCH CHANNEL IMPROVEMENT
MELCO DETENTION BASIN
ENVIRONMENTAL RESTORATION SITE
FISHPOOL
VULCAN DETENTION BASIN
Dixie Highway
Dixie Long
Dixie Snyder Freeway
Preston Highway
Shepherdsville Road
CREEK
N
0 1 2
SCALE IN MILES
POND CREEK
LOUISVILLE DISTRICT
OHIO RIVER DIVISION
01 February 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Metropolitan Region of Cincinnati, Duck Creek, Ohio (New)

LOCATION: The project encompasses 3.2 miles of stream reach in the city of Cincinnati and the village of Fairfax, in Hamilton County, Ohio.

DESCRIPTION: The recommended plan consists of 1,200 feet of stream channel relocation; 9,300 feet of stream bank riprapping; 4,500 feet of earth levees; 9,500 feet of concrete floodwalls; replacement of one railroad bridge; demolition of one abandoned highway bridge; two pump stations for interior drainage; two automated floodgate closures; one emergency access road; one flood emergency warning system; 32.1 acres of permanent easements and 10.0 acres of temporary easements; relocation of one small business; and environmental mitigation. All work is programmed.

AUTHORIZATION: The project is budgeted for initiation of construction under proposed legislation.

REMAINING BENEFIT-COST RATIO: 1.37 to 1 at 7 3/4 percent.

TOTAL BENEFIT-COST RATIO: 1.24 to 1 at 7 3/4 percent.

BASIS OF BENEFIT COST RATIO: Benefits are from the Metropolitan Region of Cincinnati Ohio, Kentucky, and Indiana Interim Feasibility Report for Duck Creek, dated January, 1994, at 1993 price levels.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		8,688,000
Estimated Non-Federal Cost		8,687,000
Cash Contribution	5,978,000	
Other Costs	2,709,000	
Total Estimated Project Cost		17,375,000

STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	15	Being Determined

PHYSICAL DATA	
Levees	4,500 ft.
Floodwalls	9,500 ft.
Access Road	1
Pump Stations	2
Channel Relocation	1,200 ft.
Replace R.R. Bridge	1
Streambank Protection	9,300 ft.
Demolish Highway Bridge	1
Acres of Permanent Easements	32

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED COST
Allocations to 30 September 1995	943,000	
Conference Allowance for FY 1996	300,000	
Allocation for FY 1996	233,000 1/	
Allocations through FY 1996	1,176,000	13
Allocation Requested for FY 1997	466,000	19
Balance to Complete after FY 1997	7,046,000	

1/ Reflects a reduction of $78,000 assigned as savings and slippage.

JUSTIFICATION: Duck Creek suffers from frequent flash flooding affecting roads, utilities, 9 residential properties, and 32 commercial/industrial properties valued at $62.4 million; threatens over 1,000 jobs in manufacturing; and disrupts production. The most recent out-of-bank flooding causing property damage occurred in April, 1994. Threatening flood conditions occurred 5 times in a four-month period during 1991, with plant closures during at least one of these events. The potential for frequent damaging floods and for less frequent but catastrophic flooding exists during any given year. The most recent significant flooding along Duck Creek occurred in 1982 and 1985. These two floods are estimated to have been a 25-year frequency event and a 10-year frequency event, respectively. A recurrence of these floods would cause damages estimated at $5.6 million and $1.2 million, respectively, in 1995 price levels and conditions of development. The recommended plan reduces average annual flood damages by 94 percent. The recommended plan provides a uniform 100 year level of protection for the three protected areas.

Average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	1,749,000
Advance Bridge Replacement	34,000
Total	1,783,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate Lands and Damages Federal Administration	34,000
Initiate Bridge Demolition	24,000
Initiate Channel Improvement	245,000
Planning, Engineering, and Design	113,000
Construction Management	50,000
Total	466,000

NON-FEDERAL COSTS: In accordance with legislation proposed by the Administration, the non-Federal sponsors must comply with the requirements listed below.

Requirements of Local Cooperation	Payments during During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Replacement, and Rehabilitation Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	2,524,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	185,000	
Pay approximately 34.4 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 50 percent and bear all costs of operation, maintenance, repair, replacement, and rehabilitation.	5,978,000	45,000
Total Non-Federal Costs	8,687,000	45,000

The non-Federal sponsors will be required to make all payments concurrently with project construction.

1098

NON-FEDERAL COSTS (Continued):

Floodplain Management Requirement

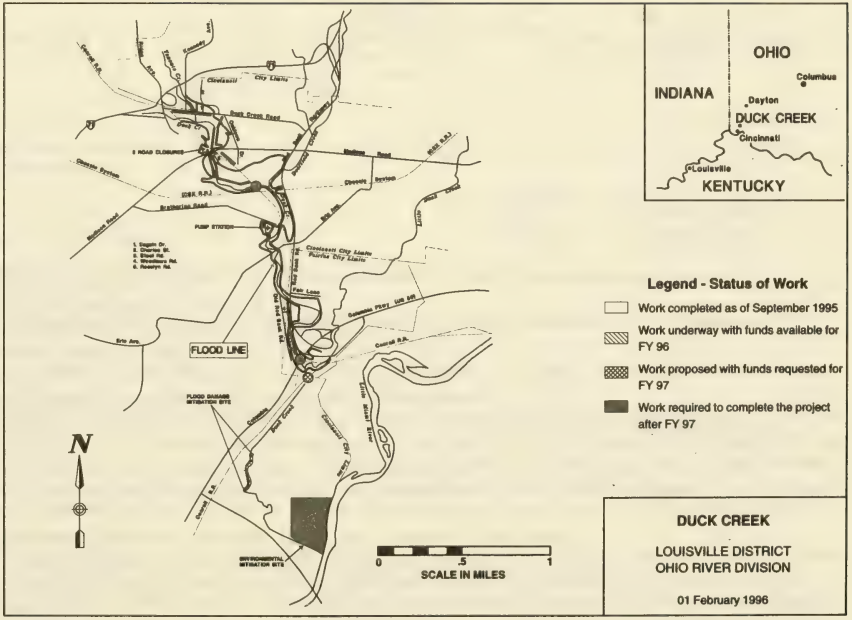
Communities must agree to adopt additional flood plain management activities, beyond the requirement to participate in the National Flood Insurance Program, to qualify for Federal participation in a structural flood damage reduction project. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of storm water runoff, and preservation of open space.

STATUS OF LOCAL COOPERATION: The non-Federal sponsors are the city of Cincinnati, Ohio and the village of Fairfax, Ohio. Each sponsor has provided all necessary local assurances for this stage of project development. Both the city of Cincinnati and the village of Fairfax are legally constituted public bodies with the full power, authority, and capability to perform the terms of the Project Cooperation Agreement (PCA). The terms of the PCA have been discussed with each sponsor and each understands its responsibilities. Execution of the PCA is scheduled for October, 1996. In May, 1993, the Cincinnati City Council approved a rate increase by the Cincinnati Stormwater Management Utility that included funds for the city's share of project costs. The village of Fairfax will fund its share of project costs from either the proceeds of a bond issue or an increase in its earnings tax.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $8,688,000 is the first estimate presented to Congress for construction (FY 1997).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Impact Statement is not required. A Finding of No Significant Impact was signed on January 14, 1994.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1994.


OHIO
INDIANA
Columbus
Dayton
DUCK CREEK
Cincinnati
Louisville
KENTUCKY
Legend - Status of Work
Work completed as of September 1995
Work underway with funds available for FY 96
Work proposed with funds requested for FY 97
Work required to complete the project after FY 97
FLOOD LINE
N
0 .5 1
SCALE IN MILES
DUCK CREEK
LOUISVILLE DISTRICT
OHIO RIVER DIVISION
01 February 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Saw Mill Run, Pittsburgh, Pennsylvania (New)

LOCATION: Saw Mill Run is a tributary to and enters the Ohio River from the left descending bank at River Mile 0.7. The project is located at the mouth of Saw Mill Run in the West End area of the city of Pittsburgh, Pennsylvania.

DESCRIPTION: The proposed Saw Mill Run Local Flood Protection Project extends 4,700 feet from the stream's mouth. The work consists of channel deepening and realignment, channel paving, streambank stabilization, gravity and retaining walls, utility relocations, and the installation of two upstream flood warning gages. All work is programmed.

AUTHORIZATION: Water Resource Development Act of 1986 (Public Law 99-662). Reauthorization to increase the authorized project cost is required.

REMAINING BENEFIT - REMAINING COST RATIO: 1.20 to 1 at 7-3/4 percent.

TOTAL BENEFIT - COST RATIO: 1.13 to 1 at 7-3/4 percent.

BASIS OF BENEFIT - COST RATIO: Benefits are from the Saw Mill Run Flood Protection Project General Reevaluation Report, dated January, 1994, at October, 1993 price levels.

SUMMARIZED FINANCIAL DATA				STATUS (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost			$ 7,050,000	Entire Project	15	Being Determined
Programmed Construction		$ 6,390,000				
Unprogrammed Construction		660,000				
Estimated Non-Federal Cost			$ 7,050,000			
Programmed Construction		6,390,000				
Cash Contributions	$ 5,260,000					
Other Costs	1,130,000					
Unprogrammed Construction		660,000				
Cash Contributions	$ 660,000					
Other Costs	$ 0					
Total Estimated Programmed Construction			$12,780,000			
Total Estimated Unprogrammed Construction			1,320,000			
Total Estimated Project Cost			$14,100,000			

PHYSICAL DATA

Common Excavation	67,000 CY
Rock Excavation	780 CY
Dredging	1,900 CY
Compacted Fill	4,300 CY
Concrete Gravity Walls	590 CY
Post and Panel Walls	1 Job

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT.OF EST. FED.COST
Allocations to 30 September 1995	$ 2,009,000	
Conference Allowance for FY 1996	0	
Allocation for FY 1996	25,000 1/	
Allocation through FY 1996	2,034,000	29
Allocation requested for FY 1997	500,000	36
Programmed Balance to Complete after FY 1997	$ 3,856,000 2/	
Unprogrammed Balance to Complete after FY 1997	660,000 2/	

1/ Reflects $25,000 reprogrammed to the project.

2/ The maximum project cost in accordance with Section 902 of the Water Resources Development Act of 1986, as amended, is $12,780,000. Obligation or expenditure of additional funds would require reauthorization of the project.

JUSTIFICATION: Saw Mill Run drains an area of 19.4 square miles in Allegheny County, Pennsylvania, with the lower half of the drainage area located within the Pittsburgh city limits. The topography is hilly and the flood plain is narrow, with about 75 percent of the basin in areas of urban development. The proposed project is designed to protect a combination of residential, commercial and light industrial properties, valued at $13,200,000, from flooding. The maximum flood of record occurred in 1943, at which time flood damages of approximately $300,000 (1993 value $6,000,000) were incurred. Low level flooding has occurred regularly in the drainage area during periods of moderate rain. The project will provide protection from the 20 year flood event. The average annual damages are $94,000 with the project and $1,103,000 without the project.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate Lands and Damages Federal Administration	$ 15,000
Planning, Engineering, and Design	430,000
Construction Management	55,000
Total	$ 500,000

NON-FEDERAL COSTS: In accordance with legislation proposed by the Administration, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments during Construction and Reimbursements	Annual Operation, Maintenance, Repair, Replacement, and Rehabilitation Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	$ 860,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	270,000	
Pay approximately 42 percent of the cost allocated to flood control to bring the total non-federal share of flood control costs to 50 percent and bear all costs of operation, maintenance, repair, replacement, and rehabilitation.	5,920,000	83,000
Total Non-Federal Costs	$ 7,050,000	$ 83,000

The non-Federal sponsor will be required to make all payments concurrently with project construction.

Floodplain Management Requirement

Communities must agree to adopt additional flood plain management activities, beyond the requirement to participate in the National Flood Insurance Program, to qualify for Federal participation in a structural flood damage reduction project. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of storm water runoff, and preservation of open space.

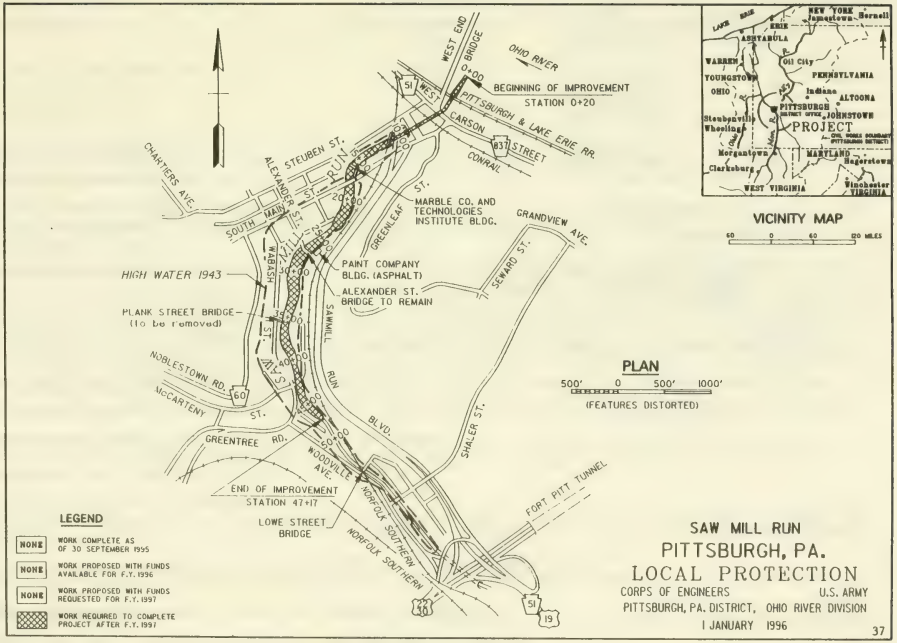
STATUS OF LOCAL COOPERATION: The non-federal cost sharing partner is the city of Pittsburgh, Pennsylvania. By letter dated January 19, 1993, the city expressed its assurance that it would serve as the local sponsor for the project, if funded for construction. The Project Cooperation Agreement is scheduled for execution in November, 1996. The city of Pittsburgh will initiate real estate acquisition in FY 1997 and complete acquisition in FY 1998. The construction contract is scheduled for award in May 1998.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $7,050,000 is the initial estimate presented to Congress for construction (FY 1997).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An environmental assessment was completed during the reevaluation study, and a signed Finding of No Significant Impacts (FONSI) was included in the General Reevaluation Report, dated January, 1994.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1989.

The maximum project cost in accordance with Section 902 of the Water Resources Development Act of 1986, as amended, is $12,780,000. Obligation or expenditure of additional funds would require reauthorization of the project.


WEST END BRIDGE
OHIO RIVER
0+00
BEGINNING OF IMPROVEMENT
STATION 0+20
PITTSBURGH & LAKE ERIE RR.
CARSON STREET
CONRAIL
STEUBEN ST.
ALEXANDER ST.
CHANTIERS AVE.
SOUTH MAIN ST.
WABASH ST.
SAWMILL RUN
GREENLEAF ST.
MARBLE CO. AND TECHNOLOGIES INSTITUTE BLDG.
GRANDVIEW AVE.
SEWARD ST.
HIGH WATER 1943
PAINT COMPANY BLDG. (ASPHALT)
ALEXANDER ST. BRIDGE TO REMAIN
PLANK STREET BRIDGE (to be removed)
NOBLESTOWN RD.
McCARTENY ST.
GREENTREE RD.
BLVD.
SHALER ST.
WOODVILLE AVE.
END OF IMPROVEMENT
STATION 47+17
LOWE STREET BRIDGE
NORFOLK SOUTHERN
FORT PITT TUNNEL
PLAN
500' 0 500' 1000'
(FEATURES DISTORTED)
LEGEND
NONE WORK COMPLETE AS OF 30 SEPTEMBER 1995
NONE WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 1996
NONE WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 1997
WORK REQUIRED TO COMPLETE PROJECT AFTER F.Y. 1997
VICINITY MAP
60 0 60 120 MILES
NEW YORK
Jamestown
Hornell
LAKE ERIE
ERIE
ASHTABULA
WARREN
YOUNGSTOWN
OHIO
Oil City
PENNSYLVANIA
Indiana
ALTOONA
PITTSBURGH
JOHNSTOWN
Steubenville
Wheeling
PROJECT
Morgantown
MARYLAND
Clarksburg
Hagerstown
WEST VIRGINIA
Winchester
VIRGINIA
SAW MILL RUN
PITTSBURGH, PA.
LOCAL PROTECTION
CORPS OF ENGINEERS U.S. ARMY
PITTSBURGH, PA. DISTRICT, OHIO RIVER DIVISION
1 JANUARY 1996
37

APPROPRIATION TITLE: Construction, General - Locks and Dams (Navigation)

PROJECT: Olmsted Locks and Dam, Illinois and Kentucky (Continuing)

LOCATION: The project is located in Pulaski County, Illinois and Ballard County, Kentucky on the Ohio River near Olmsted, Illinois, approximately 964 miles downstream from Pittsburgh, Pennsylvania.

DESCRIPTION: The project will replace Ohio River Locks and Dams 52 and 53. The new structure will consist of two 110 by 1200 foot locks adjacent to the Illinois shore and a dam comprised of a 2,200 foot wide navigable pass and 426 feet of fixed weir. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1988.

REMAINING BENEFIT-REMAINING COST RATIO: 6.0 at 8 7/8 percent.

TOTAL BENEFIT-COST RATIO: 4.2 at 8 7/8 percent.

INITIAL BENEFIT-COST RATIO: 3.7 at 8 7/8 percent (FY 1991).

BASIS OF BENEFIT-COST RATIO: Benefits are based on the benefit evaluation contained in the Olmsted Locks and Dam Benefit Update, dated October, 1990.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		$1,020,000,000
General Appropriations	$510,000,000	
Inland Waterway Trust Fund	510,000,000	
Estimated Non-Federal Cost		0
Total Estimated Project Cost		$1,020,000,000

STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	14	Being Determined

PHYSICAL DATA

Lock	- 110 by 1200 foot Chambers	2
Dam	- Navigable Pass	2,200 ft.
	Fixed Weir	426 ft.
Acres	- Dam	123
	Road	21
	Disposal Area	114
	Flow Easements	35

SUMMARIZED FINANCIAL DATA (Continued)

	GENERAL APPNS.	INLAND WATERWAYS TRUST FUNDS	ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1995	67,777,000	67,779,000	
Conference Allowance for 1996	16,050,000	16,050,000	
Allocation for 1996	14,834,000 1/	14,834,000 2/	
Allocations through 1996	82,611,000	82,613,000	16
Allocation Requested for 1997	35,177,000	35,175,000	23
Programmed Balance to Complete after 1997	392,212,000	392,212,000	
Unprogrammed Balance to Complete after 1997	0	0	

1/ Reflects a reduction of $1,331,000 assigned as savings and slippage and $115,000 reprogrammed to the project.
2/ Reflects a reduction of $1,331,000 assigned as savings and slippage and $115,000 reprogrammed to the project.

JUSTIFICATION: The project is in a strategic location on the inland waterway system. Virtually all waterway traffic moving between the Ohio River and tributaries and the Mississippi River and tributaries passes through the project area. Olmsted Locks and Dam will replace existing Ohio River Locks and Dams 52 and 53, which are over 60 years old. Both projects have temporary lock chambers that are inefficient and neither project conforms to current design criteria for structural stability. Commercial navigation in 1994 was 101.3 million tons through Lock 52. Historically, tonnage growth has been steady and is expected to continue in the short term and the long term. In the 15 year period 1980 to 1994, tonnage levels increased a total of 54 percent. The long term (2000-2020) average annual growth rate is projected to be 1.3 percent. The value of the commodities through the project area in 1994 was estimated at $11 billion. Energy-related commodities comprised approximately 50 percent of the total tonnage, with grains and chemicals each contributing approximately 15 and 10 percent, respectively, of total tonnage. The projected increases in waterway traffic demands in combination with the limited capacity of the existing locks will result in increased lockage delays.

The following counties qualify as areas of "substantial and persistent" unemployment: Illinois - Alexander, Johnson, Massac, Pope, Pulaski, and Union; Kentucky - Ballard, Carlisle, Graves, Livingston, and Marshall.

JUSTIFICATION (Continued): Average annual benefits are as follows:

Annual Benefits	Amount
Navigation	$ 539,300,800
Employment	1,040,000
Cost Reduction	33,962,100
Total	$ 574,302,900

FISCAL YEAR 1997: The requested amount of $70,352,000 will be applied as follows:

Complete Real Estate Activities	$ 314,000
Initiate and Complete Boat Ramp Construction	590,000
Complete Waterfowl Area Construction	2,300,000
Continue Lock Construction	56,084,000
Planning, Engineering, and Design	6,948,000
Construction Management	4,116,000
Total	$ 70,352,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, 50 percent of the total cost of construction will be derived from the Inland Waterways Trust Fund.

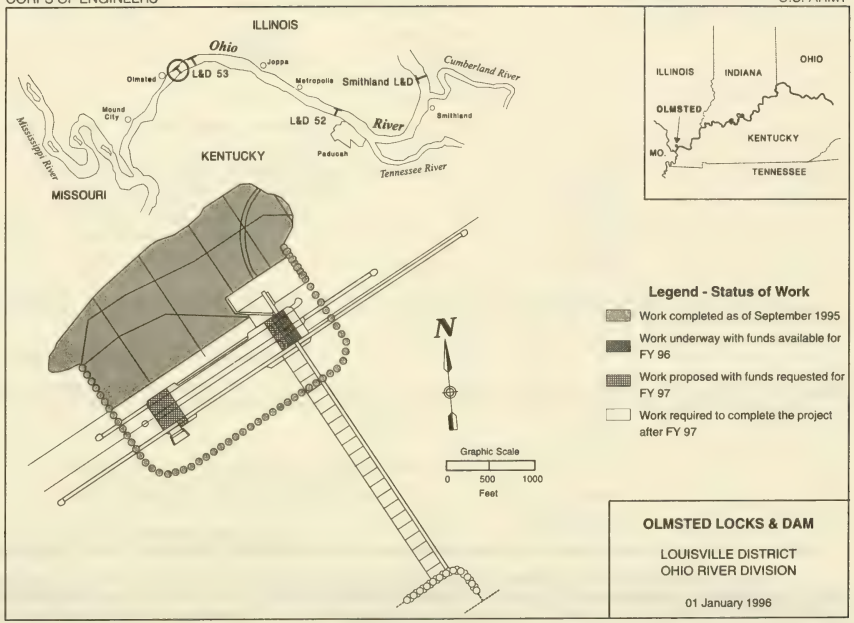
STATUS OF LOCAL COOPERATION: None required.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $1,020,000,000 is a decrease of $30,000,000 from the latest estimate ($1,050,000,000) presented to Congress (FY 1996). The change includes the following items.

Item	Amount
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	$ 4,628,000
Price Escalation on Construction Features	-34,628,000
Total	$-30,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A final Environmental Impact Statement (EIS) was filed with the Environmental Protection Agency on April 4, 1986. Due to project changes, a Draft Supplemental EIS was filed in November, 1991. The Final Supplement to the EIS was filed on March 26, 1993, and the Record Of Decision was signed on May 5, 1993.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1986. Funds to initiate construction were appropriated in FY 1991.


ILLINOIS
Ohio
Joppa
Olmsted
L&D 53
Metropolis
Smithland L&D
Cumberland River
Mound City
L&D 52
River
Smithland
Mississippi River
KENTUCKY
Paducah
Tennessee River
MISSOURI
ILLINOIS
INDIANA
OHIO
OLMSTED
KENTUCKY
MO.
TENNESSEE
N
Graphic Scale
0 500 1000
Feet
Legend - Status of Work
Work completed as of September 1995
Work underway with funds available for FY 96
Work proposed with funds requested for FY 97
Work required to complete the project after FY 97
OLMSTED LOCKS & DAM
LOUISVILLE DISTRICT
OHIO RIVER DIVISION
01 January 1996

APPROPRIATION TITLE: Construction, General - Locks & Dams (Navigation)

PROJECT: McAlpine Locks and Dams, Kentucky and Indiana (Continuing)

LOCATION: The project is located on the Ohio River at Louisville, Kentucky, Ohio River mile 604.0 to 608.0.

DESCRIPTION: The modernization of the existing facility will replace a 600-foot auxiliary lock chamber and an inactive 360-foot 2-stage chamber with a 1,200-foot lock on the Kentucky bank side of the existing lock and dam. This effort will result in twin 1,200-foot locks for tow traffic. Construction of a new bridge is required to continue access to Shippingport Island and the Louisville Gas & Electric hydroelectric power facility.

AUTHORIZATION: The Water Resources Development Act of 1990.

REMAINING BENEFIT-REMAINING COST RATIO: 1.9 at 7 3/4 percent.

TOTAL BENEFIT-COST RATIO: 1.8 at 7 3/4 percent.

BASIS OF BENEFIT COST RATIO: Benefits are based on the General Design Memorandum, Project Economic Update approved in March, 1994, at 1994 price levels.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		$255,000,000
General Appropriations	127,500,000	
Inland Waterways Trust Fund	127,500,000	
Estimated Non-Federal Cost		0
Total Estimated Project Cost		$255,000,000

STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	4	Being Determined

PHYSICAL DATA

Fixed Bridge	2,100 ft.
Lock Chamber (New)	110 by 1,200 ft.
Buildings:	
Resident Engineer	6,100 SF
Operations Service	2,300 SF
Storage	5,100 SF

1111

SUMMARIZED FINANCIAL DATA (Continued)

	GENERAL APPNS	INLAND WATERWAYS TRUST FUNDS	ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1995	$ 7,645,000	$ 0	
Conference Allowance for FY 1996	0	3,487,000	
Allocation for FY 1996	- 21,000 1/	2,889,000 2/	
Allocations through FY 1996	7,624,000	2,889,000	4
Allocation Requested for FY 1997	1,383,000	6,118,000	7
Programmed Balance to Complete after FY 1997	118,493,000	118,493,000	
Unprogrammed Balance to Complete after FY 1997	0	0	

1/ Reflects a reduction of $21,000 reprogrammed from the project.
2/ Reflects a reduction of $288,000 assigned as savings and slippage and $310,000 reprogrammed from the project.

JUSTIFICATION: The existing navigation locks are on the Kentucky side of the river. They consist of a 110 by 1,200 foot main lock that was placed in operation in 1961 and two auxiliary locks that were completed in 1930 (110 by 600 foot) and 1921 (56 by 360 foot, closed since 1971). The modernization of the existing facility would replace the existing auxiliary locks with a new 110 by 1,200 foot lock. The new lock is in response to identified annual increases in tonnage levels and delays. Tonnages through the McAlpine Locks are expected to grow annually from the 1993 figure of 63.2 million tons to 141.6 million tons in 2050. About 55 percent of current traffic is coal. Currently, the average delay is 0.8 hours per tow. By the year 2050, the average delay is projected to be 60.5 hours per tow. With the lock addition, the average delay is projected to be 1.1 hours per tow. Other project components include a fixed bridge spanning 2,100 feet, including 840 feet of embankment, and three one-story buildings for offices, service, and storage.

Average annual benefits, all navigation from reduced delays, are estimated to be $41,621,000.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate Bridge Construction	$ 2,180,000
Continue Buildings, Grounds & Utilities	3,521,000
Planning, Engineering, and Design	900,000
Construction Management	900,000
Total	$ 7,501,000

1112

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, 50 percent of the total cost of construction will be derived from the Inland Waterways Trust Fund.

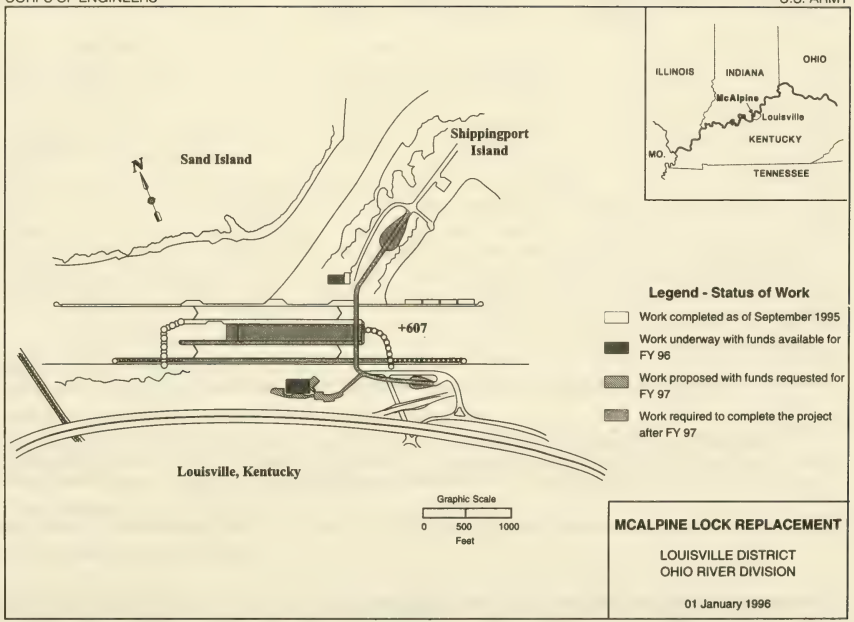
STATUS OF LOCAL COOPERATION: None required.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $255,000,000 is the first estimate presented to Congress for construction (FY 1997).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment and a Finding of No Significant Impacts (FONSI) have been signed and included in the Final Feasibility Report. In addition, a Section 404 (b) (1) Evaluation has been completed and 401 Water Quality Certification will be obtained from the Kentucky Division of Water. The final Environmental Impact Statement (EIS) was filed with the Environmental Protection Agency in August, 1990. A supplemental EIS updating project requirements is scheduled to be completed in FY 1996.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1990. Funds to initiate construction were appropriated in FY 1996.

CORPS OF ENGINEERS U.S. ARMY



APPROPRIATION TITLE: Construction, General - Locks and Dams (Navigation)

PROJECT: Grays Landing Lock and Dam (Lock and Dam 7), Monongahela River, Pennsylvania (Continuing)

LOCATION: Lock and Dam 7 is located on the left bank of the Monongahela River, 85.0 miles above the mouth of the river at Pittsburgh, Pennsylvania. The site of the proposed lock and dam is in Fayette and Greene Counties, Pennsylvania, on the right descending bank of the Monongahela River, 82.0 miles above its mouth at Pittsburgh, Pennsylvania.

DESCRIPTION: The project will replace the existing Lock and Dam 7, a 56 by 360 foot lock and fixed crest dam, with a modern 84 by 720 foot lock and a non-navigable, fixed crest dam. Completion of historical structure mitigation and repair to potential railroad embankment slides is unprogrammed.

AUTHORIZATION: Supplemental Appropriations Act, 1985, for engineering and design and land acquisition and Water Resources Development Act of 1986 for construction.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because project construction is substantially complete.

TOTAL BENEFIT-COST RATIO: 2.3 to 1 at 8 3/8 percent.

INITIAL BENEFIT-COST RATIO: 2.6 to 1 at 8 3/8 percent (FY 1986).

BASIS OF BENEFIT-COST RATIO: Benefits are from the Lock Design Memorandum No. 1, General Design Memorandum, approved in April, 1987, at January, 1987 price levels.

SUMMARIZED FINANCIAL DATA			STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		181,000,000	Entire Project	95	Being Determined
General Appropriations	90,500,000				
Inland Waterways Trust Fund	90,500,000				
Estimated Non-Federal Cost		0			
Total Estimated Project Cost		181,000,000			

SUMMARIZED FINANCIAL DATA (Continued)

	GENERAL APPNS.	INLAND WATERWAYS TRUST FUND	ACCUM. PCT.OF EST. FED.COST
Allocations to 30 September 1995	85,780,400	85,782,000	
Conference Allowance for FY 1996	0	0	
Allocation for FY 1996	1,119,600 1/	1,118,000 2/	
Allocations through FY 1996	86,900,000 3/	86,900,000 3/	95
Allocation Requested for FY 1997	50,000	50,000	96
Programmed Balance to Complete after FY 1997	0	0	
Unprogrammed Balance to Complete after FY 1997	3,550,000 3/	3,550,000 3/	

1/ Reflects $ 1,119,600 reprogrammed to the project.
2/ Reflects $ 1,118,000 reprogrammed to the project.
3/ The maximum project cost in accordance with Section 902 of the Water Resources Development Act of 1986, as amended, is $173,900,000. Obligation or expenditure of additional funds would require reauthorization of the project.

PHYSICAL DATA

Lock: Single lock chamber 84 feet wide by 720 feet long

Lands and Damages:
Fee - 85 Acres
Flowage Easements - 403 Acres
Disposal, Temporary Road, & Work Easements -125 Acres

Type: Lock site - residential and industrial
Pool area - riverbank and creek bottom

Dam: Fixed crest concrete gravity dam, 576 feet long, 15 foot lift. Existing Maxwell pool at elevation 763.0 would be shortened by 3 miles. Existing pool 7 at elevation 778.0 would be extended down-river to the new dam.

JUSTIFICATION: Construction of the Grays Landing Lock and Dam is an integral part of the plan of improvement for orderly replacement of old and obsolete navigation facilities on the Monongahela River. Lock and Dam 7, which was constructed from 1923-1926, is obsolete. In addition to its overall deteriorated physical condition and poor operating condition, the existing 56 foot by 360 foot lock is inadequate to efficiently pass the current and projected volume of traffic. Recent trends in the towing industry have been toward utilization of larger tows in accordance with the capacity provided by the newer, larger facilities on the upstream and downstream portions of the Monongahela River navigation system. To pass through existing Lock 7, larger tows must be separated into segments that necessitate two or more lockages. This breaking up of tows results in costly delays and increases the possibility of accidents.

JUSTIFICATION (Continued): Waterborne commerce passing through the Grays Landing Lock site has averaged over 10,900,000 tons per year from 1990 to 1995. Since the existing lock structure was not designed to pass the current type and growing volume of traffic, structural deterioration is progressing at an accelerated rate and is expected to result in numerous and severe breakdowns of the facility in the very near future.

The average annual benefits of $64,600,000 are all navigation benefits. The benefits are based on both the replacement of Lock and Dam 7 (Grays Landing Lock and Dam) and Lock 8 (Point Marion Lock) being in place.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue Real Estate	$ 20,000
Continue Relocations	20,000
Continue Cultural Resources Investigations	20,000
Planning, Engineering and Design	20,000
Construction Management	20,000
Total	$100,000

NON-FEDERAL COSTS: In accordance with the cost-sharing and financing concept reflected in the Water Resources Development Act of 1986, 50 percent of the total cost of construction will be derived from the Inland Waterways Trust Fund.

Construction of the project may require modification of an existing coal loading dock which was originally constructed under Department of the Army permit pursuant to Section 10 of the River and Harbor Act, approved March 3, 1899. The estimated cost of adapting the coal loading facility to new project conditions is $2,245,000.

STATUS OF LOCAL COOPERATION: None required.

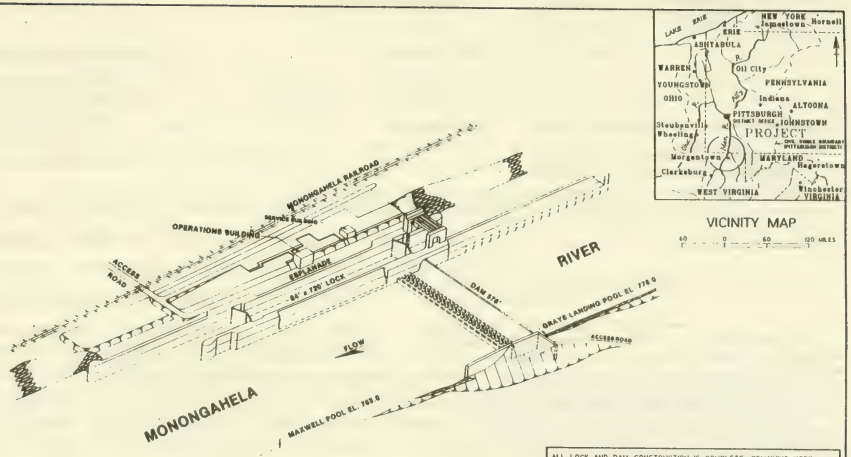
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $181,000,000 is an increase of $9,200,000 from the last estimate ($171,800,000) presented to Congress (FY 1995). This change includes the following items.

Item	Amount
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	2,600,000
Design Changes	$6,600,000
Total	$9,200,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency on August 3, 1984.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1985. Funds to initiate land acquisition were appropriated in FY 1985. Funds to initiate construction were appropriated in FY 1988.

The maximum project cost in accordance with Section 902 of the Water Resources Development Act of 1986, as amended, is $173,900,000. Obligation or expenditure of additional funds would require reauthorization of the project.



ALL LOCK AND DAM CONSTRUCTION IS COMPLETE. REMAINING WORK TO BE ACCOMPLISHED IS FINALIZING REAL ESTATE, CULTURAL RESOURCE AND PLANNING, ENGINEERING AND DESIGN ACTIVITIES. ADDITIONALLY THE CORPS IS RESPONSIBLE FOR BANK STABILIZATION OF A 1.7 MILE SECTION OF RAILROAD.

LEGEND

- [ ] WORK COMPLETE AS OF 30 SEPTEMBER 1995
- NONE — WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 1996
- NONE — WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 1997
- NONE — WORK REQUIRED TO COMPLETE PROJECT AFTER F.Y. 1997

GRAY'S LANDING LOCK & DAM

MONONGAHELA RIVER

CORPS OF ENGINEERS U.S. ARMY
PITTSBURGH, PA. DISTRICT, OHIO RIVER DIVISION
1 JANUARY 1996

51

23-577 96-36

APPROPRIATION TITLE: Construction General - Locks and Dams (Navigation)

PROJECT: Locks and Dams 2, 3 and 4, Monongahela River, Pennsylvania (Continuing)

LOCATION: Existing Locks and Dams 2, 3, and 4 are the last of the old and undersized locks on the Monongahela River system and have components which have been in service for nearly 100 years. The three projects are located on the lower portion of the Monongahela River near the city of Pittsburgh, Pennsylvania. Measured from the Point in Pittsburgh, Locks and Dam 2 is located at river mile 11.2, Locks and Dam 3 at river mile 23.8, and Locks and Dam 4 at river mile 41.5. Six other navigation projects situated upstream of Locks and Dam 4 provide a navigable waterway to Fairmont, West Virginia. At the Point in Pittsburgh, the Monongahela River joins with the Allegheny River to form the Ohio River.

DESCRIPTION: Existing Locks and Dam 2 consists of a main lock with chamber dimensions of 110 by 720 feet, an auxiliary lock with chamber dimensions of 56 by 360 feet, and a 748-foot fixed-crest dam. Existing Locks and Dam 3 consists of locks with chamber dimensions of 56 by 720 feet and 56 by 360 feet and a 670-foot fixed-crest dam. Existing Locks and Dam 4 consists of locks with chamber dimensions of 56 by 720 feet and 56 by 360 feet and a gated dam consisting of five 84-foot gated sections and a 43-foot fixed weir section. The authorized projects consist of a new gated dam and a rehabilitated auxiliary chamber floodway bulkhead structure at Locks and Dam 2; new twin 84 by 720 foot locks and below-dam scour protection of Locks and Dam 4; raising pool 2 by 5 feet and lowering pool 3 by 3.2 feet; removal of Locks and Dam 3; and associated channel dredging, relocations and bank stabilization. Construction began in FY 1995 with the upgrade of the Locks 2 auxiliary chamber floodway bulkhead and relocations. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1992.

REMAINING BENEFIT - REMAINING COST RATIO: 4.4 to 1 at 8 percent.

TOTAL BENEFIT - COST RATIO: 4.3 to 1 at 8 percent.

BASIS OF BENEFIT - COST RATIO: Benefits are from an economic update completed in May, 1994.

SUMMARIZED FINANCIAL DATA			STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		645,000,000	Entire Projects	3	Being Determined
General Appropriations	322,500,000				
Inland Waterway Trust Fund	322,500,000				
Estimated Non-Federal Cost		0			
Total Estimated Project Cost		645,000,000			

SUMMARIZED FINANCIAL DATA (Continued)

	GENERAL APPNS.	INLAND WATERWAYS TRUST FUND	ACCUM. PCT.OF EST. FED.COST
Allocations to 30 September 1995	13,011,300	3,491,000	
Conference Allowance for FY 1996	2,311,000	12,689,000	
Allocation for FY 1996	1,118,700 1/	10,639,000 2/	
Allocation thru FY 1996	14,130,000	14,130,000	5
Allocation Requested for FY 1997	8,550,000	8,550,000	7
Programmed Balance to Complete after FY 1997	298,631,000	298,631,000	
Unprogrammed Balance to Complete after FY 1997	0	0	

1/ Reflects a reduction of $194,000 assigned as savings and slippage and $998,300 reprogrammed from the projects.
2/ Reflects a reduction of $1,050,000 assigned as savings and slippage and $1,000,000 reprogrammed from the projects.

PHYSICAL DATA

Locks and Dams 2 and 3:
- New gated dam 2
- Rehabilitated Auxiliary Chamber Floodway L&D 2
- Bulkhead Structure L&D 2
- Remove Locks and Dam 3
- Raise pool 2 by 5 feet and lower pool 3 by 3.2 feet

Locks and Dam 4:
- New twin 84 by 720 foot locks
- Scour Protection

JUSTIFICATION: The projects are located on the Monongahela River near Pittsburgh. The major problems with the projects are deteriorated structural condition and limited lock capacity. These problems are expected to become increasingly severe as the projects age and as traffic and tow size increase with the upstream construction of larger locks at the Grays Landing and Point Marion projects. The extreme structural deterioration of Dam 2 and Locks and Dam 3 is of paramount concern. Major repairs and rehabilitation will not prevent structural failure. By year 2000, the probability of major structural failure and catastrophic loss of navigation pools will become unacceptable. The completion of the new gated dam at Locks and Dam 2, together with completion of the Pool 2 relocations and raising of Pool 2, will provide significant risk mitigation while the balance of the authorized plan is under design and construction. The continued viability of the Lower Monongahela River navigation system is vital to southwestern Pennsylvania and northeastern West Virginia. For example, Consolidation Coal Co. is constructing a coal transfer facility 16.6 river miles upstream of Locks and Dam 4 that will receive up to 6 million tons per year of coal via rail from inland mines and an unspecified amount of coal per year by barge. The coal will be blended and barged to riverside customers. This facility will benefit from the improved reliability and efficiency to be provided by the projects.

JUSTIFICATION (Continued): Average annual benefits are as follows:

Annual Benefits	Amount
Commercial Navigation (Shallow Draft Locks)	$330,200,000
Replacement of Shoreside Utilities	2,000,000
Total	$332,200,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue Real Estate Acquisition	$ 500,000
Continue Relocations	7,000,000
Continue Dam 2 Guard Wall	2,000,000
Continue Fish and Wildlife Activities	200,000
Continue Cultural Resource Activities	300,000
Planning, Engineering and Design	6,400,000
Construction Management	700,000
Total	$ 17,100,000

NON-FEDERAL COSTS: In accordance with the cost-sharing and financing concepts reflected in the Water Resource Development Act of 1986, 50% of the total cost of construction will be derived from the Inland Waterways Trust Fund.

Construction of the projects will require modification to privately owned shoreside facilities and submarine utility crossings, which were all constructed under Department of the Army permits pursuant to Section 10 of the Rivers and Harbors Act, approved March 3, 1899. The estimated cost to owners of adapting these facilities to new project conditions is $111,000,000.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $645,000,000 is a decrease of $19,000,000 from the latest estimate ($664,000,000) presented to Congress (FY 1996). This change includes the following items:

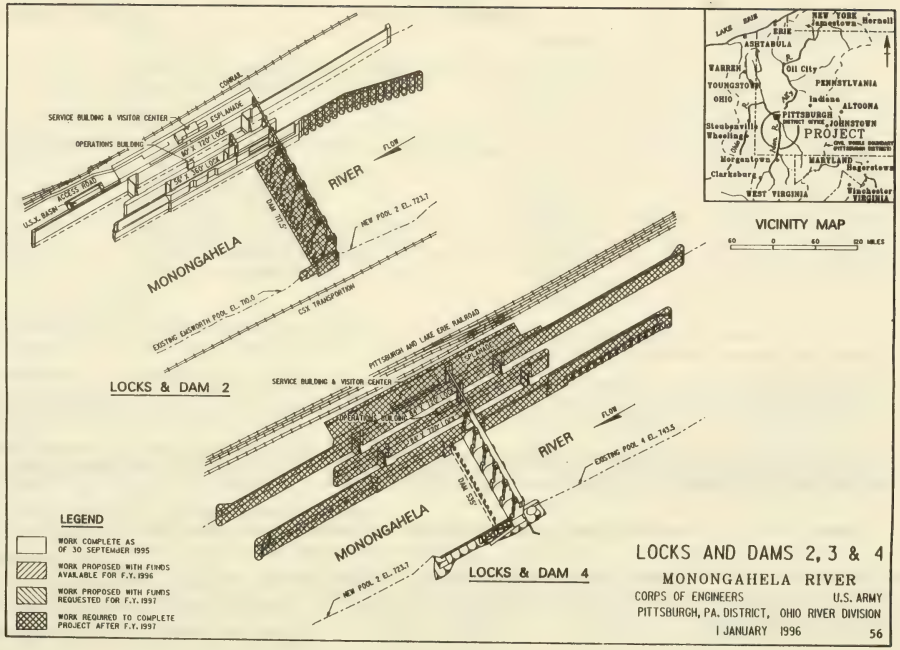
Item	Amount
Design Changes (Locks and Dam 3)	$ -6,500,000
Price Escalation on Construction Features	-12,500,000
Total	$ -19,000,000

STATUS OF LOCAL COOPERATION: None required.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency on January 28, 1992. The Record of Decision was signed by the Director of Civil Works on December 17, 1992. An Environmental Assessment and Draft Finding of No Significant Impacts for federal relocations was circulated in September, 1994.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1992. Funds to initiate construction were appropriated in FY 1995.

In addition to the cost savings achieved to date, additional savings are anticipated from several initiatives that are in the preliminary evaluation stages. These initiatives include design options for providing auxiliary lock capacity at Lock and Dam 4, instream disposal of dredged material, and the possible elimination of the need to raise a railroad bridge.


LOCKS AND DAMS 2, 3 & 4
MONONGAHELA RIVER
CORPS OF ENGINEERS U.S. ARMY
PITTSBURGH, PA. DISTRICT, OHIO RIVER DIVISION
1 JANUARY 1996
56
LOCKS & DAM 2
LOCKS & DAM 4
MONONGAHELA
RIVER
FLOW
SERVICE BUILDING & VISITOR CENTER
OPERATIONS BUILDING
CONRAIL
CSX TRANSPORTATION
PITTSBURGH AND LAKE ERIE RAILROAD
NEW POOL 2 EL. 723.7
EXISTING POOL 4 EL. 743.5
LEGEND
WORK COMPLETE AS OF 30 SEPTEMBER 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 1997
WORK REQUIRED TO COMPLETE PROJECT AFTER F.Y. 1997
VICINITY MAP
60 0 60 120 MILES
NEW YORK
Jamestown
Hornell
LAKE ERIE
ASHTABULA
WARREN
Oil City
YOUNGSTOWN
PENNSYLVANIA
OHIO
Indiana
ALTOONA
PITTSBURGH
DISTRICT OFFICE
JOHNSTOWN
Steubenville
Wheeling
PROJECT
Morgantown
MARYLAND
Hagerstown
Clarksburg
WEST VIRGINIA
Winchester
VIRGINIA

APPROPRIATION TITLE: Construction, General - Locks and Dams (Navigation)

PROJECT: Robert C. Byrd Locks and Dam, (formerly Gallipolis Locks and Dam) West Virginia & Ohio (Continuing)

LOCATION: The project is situated in the Middle Ohio Valley at Ohio River mile 279.2, approximately 14 miles downstream from the mouth of the Kanawha River in West Virginia and approximately 30 miles upstream from the city of Huntington, West Virginia. The new locks are in Mason County, West Virginia and the abutment of the dam is in Gallia County, Ohio.

DESCRIPTION: The project includes the rehabilitation of the non-navigable, high-lift, gated, existing dam and construction of a new 1200 by 110 foot main lock and a new 600 by 110 foot auxiliary lock in a canal extending across a slight bend in the river, bypassing the existing locks and dam on the left descending (West Virginia) bank. The canal, in effect, straightens the river bend and provides a relatively straight down-bound approach for several miles. All work is programmed.

AUTHORIZATION: River and Harbor Act of 1935, Supplemental Appropriations Act, 1985, and the Water Resources Development Act of 1986. The Water Resources Development Act of 1992, Section 118, changed the project name to the Robert C. Byrd Locks and Dam.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because construction of the project is substantially complete.

TOTAL BENEFIT-COST RATIO: Not applicable because construction of the project is substantially complete.

INITIAL BENEFIT-COST RATIO: 11.3 to 1 at 8 1/8 percent (FY 1985).

BASIS OF BENEFIT-COST RATIO: Benefits are from the General Design Memorandum, dated November, 1982, at October, 1982 price levels.

SUMMARIZED FINANCIAL DATA		
New Construction Work		
Estimated Federal Cost		$ 292,944,000
General Appropriations	146,472,000	
Inland Waterways Trust Fund	146,472,000	
Dam Rehabilitation		
Estimated Federal Cost		$ 80,056,000
General Appropriations	40,028,000	
Inland Waterways Trust Fund	40,028,000	

STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	85	Being Determined
Lock Construction	100	Jan 1993
Mitigation Sites	40	Being Determined
Dam Rehabilitation	65	Being Determined

SUMMARIZED FINANCIAL DATA (Continued)

		GENERAL APPNS.	INLAND WATERWAYS TRUST FUNDS	ACCUM. PCT. OF EST. FED. COST
Total Estimated Federal Cost		$ 373,000,000		
General Appropriations	186,500,000			
Inland Waterways Trust Fund	186,500,000			
Estimated Non-Federal Cost		0		
Total Estimated Project Cost		$ 373,000,000		
Allocations to 30 September 1995		$155,480,000	$155,480,000	
Conference Allowance for FY 1996		5,000,000	5,000,000	
Allocation for FY 1996		4,436,000 1/	4,436,000 2/	
Allocations through FY 1996		159,916,000	159,916,000	86
Allocation Requested for FY 1997		6,079,000	6,079,000	89
Programmed Balance to Complete after FY 1997		20,505,000	20,505,000	
Unprogrammed Balance to Complete after FY 1997		0	0	

1/ Reflects a reduction of $414,000 assigned as savings and slippage and $150,000 reprogrammed from the project.
2/ Reflects a reduction of $414,000 assigned as savings and slippage and $150,000 reprogrammed from the project.

PHYSICAL DATA

Bypass Canal:
Length - 1.7 miles
Bottom Width - 500 feet (min)

Locks:
Number - 2
Main Lock - 110 x 1,200 feet
Auxiliary Lock - 110 x 600 feet

Dam:
Major rehabilitation of the existing navigation dam to include replacing the dam roller gates and strengthening the foundation.

Lands and Damages:

Total existing easement area	1798 acres
Existing Locks and dam	82 acres
New Locks and canal	546 acres
Mitigation	837 acres
Dam rehabilitation	28 acres

(Note: No residential structures are located in the affected area.)

JUSTIFICATION: Completion of the new locks has enabled tows to transit the project area efficiently and has completed a series of 110 by 1200 foot locks from near Pittsburgh to Cairo, Illinois. Reduced delays and transportation costs are benefiting the economy of the Nation directly and indirectly. The project is strategically located between the highly industrialized upper Ohio River Basin area and its product markets and supply regions. Robert C. Byrd Locks and Dam captures a significant portion of the commodities transiting the Ohio River. The traffic levels (number of lockages) have decreased and volume of commodities have increased at Robert C. Byrd Locks and Dam, as forecast in the authorization document. During 1994, 56.1 million tons of traffic locked through the Robert C. Byrd project. Commodity traffic projections reflect 75.0 and 93.5 million tons transiting the project in 2000 and 2020, respectively.

The new locks and the dam rehabilitation also remedy problems associated with the age, condition, and hazardous conditions of the existing facilities. The existing locks and dam are over 50 years old and have been increasingly difficult to operate and maintain. Lock outages have been a major problem and would have become very critical in the future. Accident reports and information from the navigation industry documented that the existing facilities were unsafe due to the location of the locks and velocities generated during above normal river conditions.

Average annual benefits for the project are estimated as follows:

Annual Benefits	Amount
Navigation	$161,178,000
Recreation	140,000
Total	$161,318,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

	New Construction	Major Rehabilitation
Continue Ice Boom Construction	$ 202,000	$ 234,000
Continue Fish and Wildlife Area Construction	4,503,000	
Continue Channel/Canal Construction		3,272,000
Continue Dam Rehabilitation		1,338,000
Continue Replacement of Recreation Facilities	530,000	
Planning, Engineering and Design	288,000	620,000
Construction Management	541,000	630,000
Total	$ 6,064,000	$ 6,094,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, 50 percent of the total costs of construction will be derived from Inland Waterways Trust Fund. The West Virginia Division of Natural Resources will be responsible for operation and management of mitigation lands at an estimated average annual cost of $55,000 for the Greenbottom area and $345,000 for the on-site mitigation (fish hatchery).

STATUS OF LOCAL COOPERATION: The West Virginia Division of Natural Resources by lease agreement has assumed responsibility for operation and management of the off-site mitigation area.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $373,000,000 is a $11,000,000 reduction from the most recent estimate ($384,000,000) presented to Congress (FY 1996). This change includes the following items:

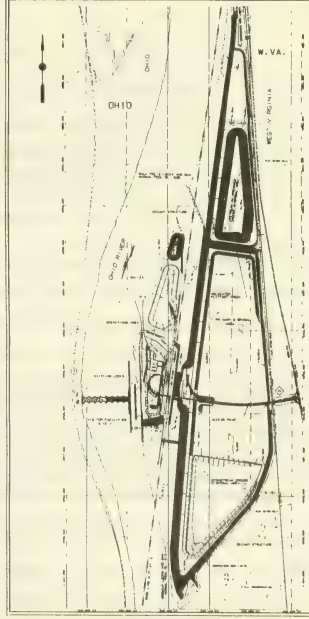
Item	Amount
Post-Contract Award and Other Estimating Adjustments (including contingency adjustments)	$ -7,000,000
Price Escalation on Construction Features	$ -4,000,000
Total	$-11,000,000

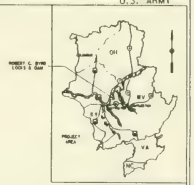
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement (EIS) was filed with Environmental Protection Agency on January 8, 1981. Supplement I to the EIS was filed on October 30, 1991.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1984. Funds to initiate construction were appropriated in FY 1985. The Water Resources Development Act of 1992, Section 118, changed the project name to the Robert C. Byrd Locks and Dam.

CORPS OF ENGINEERS

U.S. ARMY





VICINITY MAP

LANDS	100%			
RELOCATIONS	100%			
DAM REHABILITATION	49%	7%	7%	37%
LOCKS	100%			

STATUS OF WORK

- WORK COMPLETED
- WORK UNDERWAY WITH FUNDS AVAILABLE FOR F.Y. 1996
- WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 1997
- WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y.1997

OHIO RIVER

ROBERT C. BYRD LOCKS AND DAM

HUNTINGTON DISTRICT

OHIO RIVER DIVISION

1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Locks and Dams (Navigation)

PROJECT: Winfield Locks and Dam, West Virginia (Continuing)

LOCATION: Winfield Locks and Dam is located on the Kanawha River near Eleanor, West Virginia, approximately 31 miles above the confluence with the Ohio River. The pool is located entirely in West Virginia.

DESCRIPTION: The proposed modernization plan includes the construction of an additional 110 by 800 foot lock on the right descending bank landward of the existing locks and a 110-foot wide non-navigable gate bay between the old lock and the new lock. The new lock will be skewed six degrees landward (upstream to downstream) from the existing locks. The plan includes the continued use of both existing 56 by 360 foot lock chambers as auxiliary locks. The existing dam also will remain in use. All work is programmed.

AUTHORIZATION: The Supplemental Appropriations Act, 1985 for engineering and design and land acquisition, and the Water Resources Development Act of 1986 for construction.

REMAINING BENEFIT-REMAINING COST RATIO: 20.9 to 1 at 8 1/8 percent.

TOTAL BENEFIT-COST RATIO: 5.4 to 1 at 8 1/8 percent.

INITIAL BENEFIT-COST RATIO: 6.2 to 1 at 8 1/8 percent (FY 1985).

BASIS OF BENEFIT-COST RATIO: Benefits are from Design Memorandum No. 1, General Design Memorandum, dated April, 1988.

SUMMARIZED FINANCIAL DATA			STATUS (1 Jan 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$225,600,000	Entire Project	70	Being Determined
General Appropriations	$112,800,000		Locks Operational	99	May 1997
Inland Waterways Trust Fund	112,800,000				
Estimated Non-Federal Cost		0			
Total Estimated Project Cost		$225,600,000			

SUMMARIZED FINANCIAL DATA (Continued)

	GENERAL APPNS.	INLAND WATERWAYS TRUST FUND	ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1995	$ 78,336,000	$ 78,336,000	
Conference Allowance for FY 1996	5,920,000	5,920,000	
Allocation for FY 1996	5,929,000 1/	5,929,000 2/	
Allocations through FY 1996	84,265,000	84,265,000	75
Allocation Requested for FY 1997	$ 15,450,000	$ 15,450,000	88
Programmed Balance to Complete after FY 1997	13,085,000	13,085,000	
Unprogrammed Balance to Complete after FY 1997	0	0	

1/ Reflects a reduction of $491,000 assigned as savings and slippage and $500,000 reprogrammed to the project.
2/ Reflects a reduction of $491,000 assigned as savings and slippage and $500,000 reprogrammed to the project.

PHYSICAL DATA

Lock:
Number - 1
Chamber - 110 by 800 ft.
Lift - 28 ft.

Lands and Damages:
Acres - 1243 easement
- 41 existing Locks and Dam
- 316 new Lock
New Lock Site:
Mobile home park (37 units), two active industries, and one inactive industry.

JUSTIFICATION: Winfield Locks and Dam links the Kanawha Valley, an important chemical and coal producing area, to its product markets and supply areas. Up-bound traffic through Winfield is composed of important supplies of chemicals, feedstocks, aggregates, and petroleum fuels. Down-bound traffic is composed largely of coal produced in the upper Kanawha River Basin and destined for electric generating facilities and coking plants throughout the middle and upper Ohio River Basin. The average annual tonnage from 1982-95 was 18.6 million tons. During 1995, 22.0 million tons of traffic locked through Winfield. Coal is the major commodity shipped on the Kanawha River, accounting for approximately 79 percent of the total tonnage.

JUSTIFICATION (Continued): The existing Winfield project presents a significant impediment to the efficient flow of waterborne commerce due to its outdated features. Today, only 39 percent of the barges processed at Winfield are the size that the project originally was designed to serve and only two percent of the tows are small enough to be locked in a single operation. The average delay per tow was 3.0 hours in 1995 with an average of over 4 lockages per tow. The total processing time (lockage plus delay time) was 5.9 hours, the highest in the Ohio River system. Furthermore, Winfield traffic demand is projected to more than triple over the next 70 years, from 13 million tons in 1980 to 40 million tons by 2050, an annual growth rate of 1.8 percent.

Navigation safety has not been a major problem at Winfield Locks, but the potential for navigation accidents is present. This problem stems from the orientation of the locks and the design of the lock walls. The locks are located on the inside of a bend in the river that requires tows to make several maneuvers to enter and exit the locks. This is especially difficult during high river flows. With 800 foot long tows becoming more common, the short upper guard wall also presents a problem. The upper guard wall is only 450 feet long, which means that about half of a tow extends beyond the end of the wall as lockage progresses. This presents a danger that the tow might break up and be swept down on the dam during high-flow conditions. As the number of large tows increases at Winfield, the probability of accidents occurring in such instances also increases.

Average annual benefits for the project total $56,109,000, all for commercial navigation.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue Phase IIB Construction	$ 22,770,000
Continue Channel and Canal Construction	500,000
Procure Permanent Operating Equipment	1,400,000
Planning, Engineering and Design	600,000
Construction Management	2,400,000
Oversight of HTRW Remediation	3,230,000
Total	$30,900,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, 50 percent of the total costs of construction will be derived from the Inland Waterways Trust Fund.

STATUS OF LOCAL COOPERATION: Upon completion of the project, a Memorandum of Agreement will be prepared between West Virginia Division of Natural Resources (WVDNR) and the Corps of Engineers for WVDNR to assume responsibility for operation and management of the mitigation area. Annual costs are estimated to be $30,000.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $225,600,000 is a decrease of $151,400,000 from the latest estimate ($377,000,000) presented to Congress (FY 1996). This change includes the following items.

Item	Amount
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	-125,052,000
Price Escalation on Construction Features	$ -26,348,000
Total	$-151,400,000

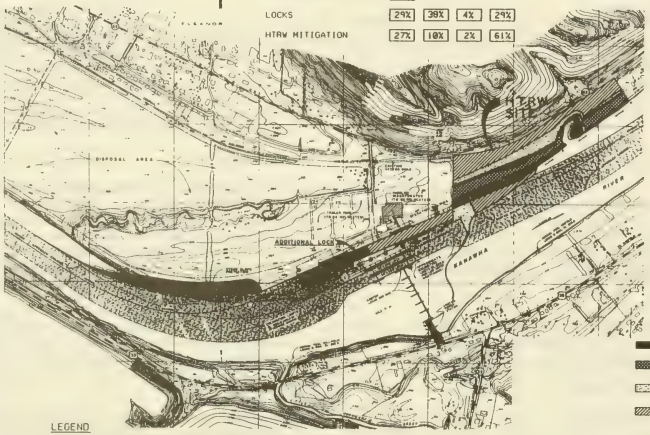
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (EIS) was filed with the Environmental Protection Agency on September 25, 1987. A Supplemental Environmental Impact Statement (SEIS) was signed by the Ohio River Division Commander on April 28, 1993. The SEIS was prepared because of the need to realign the new lock as a result of hydraulic model testing.

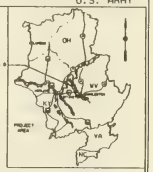
OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1985 and funds to initiate construction were appropriated in FY 1986. The construction site has been determined to contain hazardous substances that must be removed before construction can be completed. A Consent Decree between ACF and the Government was signed by a Federal Judge in July, 1995, enabling ACF to haul the contaminated material to landfills in Utah that are approved by the U.S. Environmental Protection Agency. The Consent Decree required ACF to remove the contaminated material from the site by February 21, 1996. An amendment to the Consent Decree was approved on February 3, 1996, extending the completion date for removal of contaminated material to April 5, 1996.

CORPS OF ENGINEERS

U.S. ARMY

LANDS AND DAMAGES	100%			
RELOCATIONS	100%			
LOCKS	29%	39%	4%	29%
HTRW MITIGATION	27%	10%	2%	61%





VICINITY MAP

NOTES

1. EXISTING LANDWARD LOCK TO BE DEACTIVATED.
2. EXISTING RIVERWARD LOCK AND DAM TO REMAIN IN USE.
3. EXISTING LANDWARD UPPER GUIDE WALL TO BE REMOVED.
4. CONTOURS AT 5' INTERVALS.

STATUS OF WORK

- WORK COMPLETED
- WORK UNDERWAY WITH FUNDS AVAILABLE FOR F.Y. 1996
- WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 1997
- WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 1997

LEGEND

- PROPOSED APPROACH CHANNELS
- APPROX. LIMITS OF DISPOSAL AREA

PLAN

KANAWHA RIVER

WINFIELD LOCKS AND DAM

HUNTINGTON DISTRICT

OHIO RIVER DIVISION

1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Holes Creek, West Carrollton, Ohio (Continuing)

LOCATION: The project area is located on Holes Creek in West Carrollton, Montgomery County, Ohio. West Carrollton is situated in the southwestern portion of Ohio and is a suburb of Dayton. Holes Creek drains 28.2 square miles and empties into the Great Miami River at river mile 72.6.

DESCRIPTION: The project consists of approximately 4,300 feet of channel widening (80 foot bottom width) with associated bank protection. The existing box culvert type Conrail bridge will be replaced with a 70 foot clear span structure. The project will provide protection to 428 structures in West Carrollton and Moraine. All work is programmed.

AUTHORIZATION: The Water Resources Development Act of 1986.

REMAINING BENEFIT-COST RATIO: 2.25 at 7 3/4 percent.

TOTAL BENEFIT-COST RATIO: 1.7 at 7 3/4 percent.

BASIS OF BENEFIT COST RATIO: Benefits are from the Final Reevaluation Report, West Carrollton, Ohio, dated April, 1994, at October, 1993 price levels.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		$3,306,000
Estimated Non-Federal Cost		$1,261,000
Cash Contribution	$ 662,000	
Other Costs	599,000	
Total Estimated Project Cost		$4,567,000

STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	17	Being Determined

PHYSICAL DATA

Channel Widening/Improvement	4,300 ft.
Bank Protection	4,300 ft.
Bridge Replacement	1
Acres of Permanent Easements	17.7

1135

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT OF EST. FED. COST
Allocations to 30 September 1995	$ 902,000	
Conference Allowance for FY 1996	190,000	
Allocation for FY 1996	174,000 1/	
Allocations through FY 1996	1,076,000	33
Allocation Requested for FY 1997	592,000	50
Programmed Balance to Complete after FY 1997	1,638,000	
Unprogrammed Balance to Complete after FY 1997	0	

1/ Reflects a reduction of $16,000 assigned as savings and slippage.

JUSTIFICATION: The tightly developed, urbanized community of West Carrollton, Ohio, is subject to frequent flooding from Holes Creek. The flood of record, a 25-year frequency event, occurred in January, 1959, and caused an estimated $4.5 million in damages at October, 1995 price levels. Subsequent damaging floods occurred in March, 1964, May, 1968, July, 1973, June, 1974, and May, 1989. Damages occur to a variety of residential, commercial, and public structures. A 100-year flood event would damage 428 structures at an estimated cost of $4.8 million at October, 1995 price levels. Average annual damages without the project are estimated at approximately $600,000. The recommended project would reduce these damages by approximately 97 percent.

Average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$ 595,000
Advance Bridge Replacement	90,000
Total	$ 685,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue Channel Widening	$ 380,000
Planning, Engineering, and Design	156,000
Construction Management	56,000
Total	$ 592,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments during Construction and Reimbursements	Annual Operation, Maintenance, Repair Replacement and Rehabilitation Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	$ 396,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	203,000	
Pay approximately 11.0 percent of the costs allocated to the national economic development (NED) plan for flood control to bring the total non-Federal share of the NED plan to 25 percent and bear all costs of operation, maintenance, repair, replacement, and rehabilitation of flood control facilities.	504,000	$28,000
Pay 100 percent of costs of locally preferred plan above the costs of the NED plan.	158,000	
Total Non-Federal Costs	$ 1,261,000	$28,000

The non-Federal Sponsor has agreed to make all required payments concurrently with project construction.

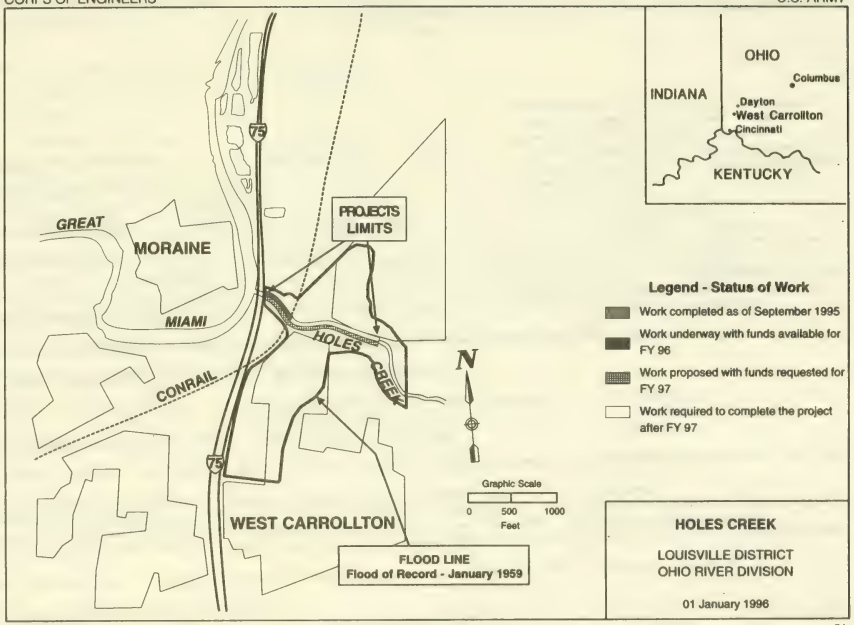
STATUS OF LOCAL COOPERATION: The non-Federal cost sharing partner is the Miami Conservancy District (MCD). MCD formed the Holes Creek/Owl Creek Conservancy Subdistrict to act as formal sponsor for this project. The Conservancy Court of Montgomery County approved the sub-district in December, 1994. An official plan and an appraisal record prepared by the Subdistrict were approved in November, 1995, enabling the subdistrict to enter into the Project Cooperation Agreement with the Government (scheduled for execution June, 1996). MCD has on hand funding sufficient to take possession of the land required for Phase I of the project. The subdistrict will issue bonds to finance the acquisition of remaining land and levy assessments on the land to be benefitted by the project to repay the bonds.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $3,306,000 is the first estimate presented to Congress for construction (FY 1997).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment was completed during the reevaluation study and a signed Finding of No Significant Impacts (FONSI) was included in the Final Reevaluation Report, dated April, 1994.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1986. Funds to initiate construction were initiated in FY 1996.

Since authorization of the project, design alternatives have been reevaluated. The Final Reevaluation Report recommended the locally preferred plan, which will provide a 150-year level of flood protection. The local sponsor has agreed to pay the additional cost associated with the locally preferred plan, currently estimated to be $158,000.


OHIO
Columbus
INDIANA
Dayton
West Carrollton
Cincinnati
KENTUCKY
GREAT
MORAINE
MIAMI
CONRAIL
HOLES CREEK
75
75
PROJECTS LIMITS
N
Graphic Scale
0 500 1000
Feet
WEST CARROLLTON
FLOOD LINE
Flood of Record - January 1959
Legend - Status of Work
Work completed as of September 1995
Work underway with funds available for FY 96
Work proposed with funds requested for FY 97
Work required to complete the project after FY 97
HOLES CREEK
LOUISVILLE DISTRICT
OHIO RIVER DIVISION
01 January 1996

APPROPRIATION TITLE: Construction, General - Local Protection Project (Flood Control)

PROJECT: West Columbus, Ohio (Continuing)

LOCATION: The project is located in Columbus, Ohio, adjacent to the downtown area in Franklin County.

DESCRIPTION: The proposed project consists of a 5.2 mile levee/floodwall system; 14 gate closures; interior drainage facilities; two new pump stations; and reworking of two existing pump stations. The protected area contains approximately 1,200 acres and is completely urban with a mix of residential, industrial, and commercial development. The project will provide protection from the standard project flood. All work is programmed.

AUTHORIZATION: The Water Resources Development Act of 1988, as amended by the Water Resources Development Act of 1990.

REMAINING BENEFIT-REMAINING COST RATIO: 2.0 to 1 at 8 3/4 percent.

TOTAL BENEFIT-COST RATIO: 1.6 to 1 at 8 3/4 percent.

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 8 3/4 percent (FY 1993).

BASIS OF BENEFIT-COST RATIO: Benefits are from the Reevaluation Report, dated September, 1991.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$ 83,000,000
Estimated Non-Federal Cost		28,000,000
Cash Contributions	12,880,000	
Other Costs	15,120,000	
Total Estimated Project Cost		$111,000,000

STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	15	Being Determined

PHYSICAL DATA

Levee and Floodwall:
19,600 feet plus 7,000 feet of high ground.
Heights range from 2 feet to 18 feet.
Gate Closures: 14 (1,100 feet)
Lands and Damages: 130 acres easement
Pump Stations: 2 (180,000 & 100,000 GPM)

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1995	$ 20,074,000	
Conference Allowance for FY 1996	2,800,000	
Allocation for FY 1996	- 482,000 1/	
Allocations through FY 1996	19,592,000	23
Allocation Requested For FY 1997	$11,400,000	37
Programmed Balance to Complete after FY 1997	52,008,000	
Unprogrammed Balance to Complete after FY 1997	0	

1/ Reflects a reduction of $232,000 assigned as savings and slippage and $3,050,000 reprogrammed from the project.

JUSTIFICATION: The West Columbus area contains a mix of residential, commercial, and industrial development that is subject to flooding. The maximum flood of record occurred in March, 1913, and the second most severe and the most recent flooding at Columbus occurred in January, 1959. A recurrence of these floods would cause damages of $300,000,000 and $253,000,000 respectively. The current value of the property subject to flooding is $415,000,000.

Average annual benefits for the project total $17,949,000, all of which are for urban flood damage reduction.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue Levee and Floodwall Construction	$6,028,000
Engineering and Design	4,172,000
Construction Management	1,200,000
Total	$11,400,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resource Development Act of 1986, the non-federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments during Construction and Reimbursements	Annual Operation, Maintenance, Repair, Replacement, and Rehabilitation
Provide lands, easements, rights of way, and borrow and dredged or excavated material disposal areas.	$1,020,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	14,100,000	
Pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, repair, replacement, and rehabilitation of recreation facilities.	500,000	
Pay approximately 11.2 percent of the cost allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, replacement and rehabilitation of flood control facilities.	12,380,000	$135,000
Total Non-Federal Costs	$28,000,000	$135,000

The non-Federal sponsor has agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The non-Federal sponsor is the city of Columbus, Ohio. A Project Cooperation Agreement with the City was executed in July, 1993. The City has provided $3,035,000 of its cash contribution for the project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $83,000,000 is a reduction of $250,000 from the last estimate ($83,250,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	$ -250,000
Total	$ -250,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) were signed in November, 1986. A revised EA and FONSI were signed in April, 1993.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1989 and funds to initiate construction were appropriated in FY 1993.

Award of the first construction contract, Dry Run Levee Phase IA, occurred in September 1993. A contract with the Ohio Department of Transportation (ODOT) for the construction by ODOT of gate closures at Souder Avenue and S.R. 315 and for modification of the I-670 embankment was executed on March 3, 1994. ODOT will accomplish this work as part of its ongoing highway construction efforts within the project area. The contract for Phase IB of Dry Run levee was awarded in April, 1995. The contracts for Phase IIA and Phase IIB are scheduled for award in the spring of 1996.

CORPS OF ENGINEERS

U.S. ARMY

LANDS	22%	29%	20%	29%
RELOCATIONS	5%	10%	10%	75%
LEVEES AND FLOODWALLS	4%	11%	24%	61%
PUMPING PLANTS	0%	2%	7%	91%

SCIOTO RIVER

WEST COLUMBUS LPP, OHIO

HUNTINGTON DISTRICT

OHIO RIVER DIVISION

1 JANUARY 1996

76

APPROPRIATION TITLE: Construction General - Local Protection (Flood Control)

PROJECT: Johnstown, Pennsylvania (Major Rehabilitation, Continuing)

LOCATION: The City of Johnstown is located in the southwestern corner of Cambria County, Pennsylvania, approximately 60 miles east of Pittsburgh. The existing project, which was constructed in six separate units, extends over approximately 3.5 miles on the Conemaugh River (Units 1, 2 and 3), 1.5 miles on the Little Conemaugh River (Unit 4) and 4.0 miles on the Stonycreek River (Units 5 and 6).

DESCRIPTION: The existing project consists of approximately nine miles of channel widening, deepening, concrete-paved channel side slopes, and concrete walls. It was constructed during the period 1938 to 1943 at a total cost of $8,865,400. Stream channel improvements include 84,500 lineal feet of concrete side slopes, 3,000 feet of low earth dikes, 9,222 lineal feet of concrete floodwalls, and associated highway, railroad and utility relocations. Approximately 16,300 feet of privately constructed masonry and concrete walls, which existed prior to the construction of the existing project, serve as flood walls as an integral part of the existing project. The area includes 23 bridge crossings. The major rehabilitation project involves rehabilitation of 54 Federally-constructed and privately-constructed wall sections and/or side slopes, replacement of a balustrade safety wall atop a section of the existing project, and the acquisition of real estate interests for construction access to unreliable non-Federal walls. All work is programmed.

AUTHORIZATION: Flood Control Act of 1936 as amended (original project) and the Energy and Water Development Appropriations Act, 1991 (major rehabilitation project).

REMAINING BENEFIT-REMAINING COST RATIO: 6.1 to 1 at 8 percent.

TOTAL BENEFIT - COST RATIO: 6.1 to 1 at 8 percent.

BASIS OF BENEFIT - COST RATIO: Benefits are from Appendix 7 to the Johnstown Rehabilitation Evaluation Report, dated March 1994, at October, 1993 price levels.

SUMMARIZED FINANCIAL DATA		STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	$32,500,000	Entire Project	1	Being Determined
Estimated Non-Federal Cost	0			
Total Estimated Project Cost	$32,500,000			

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST FED. COST
Allocations to 30 September 1995	$ 0	
Conference Allowance for FY 1996	1,230,000	
Allocation for FY 1996	1,128,000	1/
Allocation through FY 1996	1,128,000	3
Allocation Requested for FY 1997	2,200,000	10
Programmed Balance to Complete	29,172,000	
Unprogrammed Balance to Complete after FY 1997	0	

PHYSICAL DATA

Channel Excavation	34,000 CY
Reinforcing Steel	320,000 LB
Rehabilitate Walls	10,900 FT
Rehabilitate Side Slopes	1,965 FT
Rehabilitate Balustrade	3,275 FT

1/ Reflects a $102,000 reduction assigned as savings and slippage.

JUSTIFICATION: Johnstown has a national reputation for its flooding history. In 1889, the failure of a privately-owned upstream dam caused the death of 2,200 people. The March, 1936 flood prompted authorization of the existing project in the Flood Control Act of 1936. The existing project has been very effective, reducing flood damages by an estimated $418 million through 1993. Fifty-four walls that provide flood protection (both Federally owned and non-Federally owned, but all part of the project) have been found to be structurally unreliable, and major rehabilitation is needed to ensure the existing level of flood protection is provided in the future to avoid further loss of life and damage to property.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue Real Estate Acquisition	$ 150,000
Continue Relocations	80,000
Initiate Construction	300,000
Continue Cultural Resources	30,000
Planning, Engineering and Design	1,510,000
Construction Management	130,000
Total	$ 2,200,000

NON-FEDERAL COST: In accordance with the authorizing legislation, the city of Johnstown is responsible for providing rights of access, including temporary and permanent easements, sufficient to enable the Government to repair or replace those non-Federally owned buildings and walls that were incorporated into the line of protection at the convenience of the Government when the existing project was constructed. The costs of the rights of access are negligible. In addition, the city will hold and save the United States free from damages due to construction or operation and maintenance of the work on the non-Federal structures, except for damages due to the fault or negligence of the United States or its contractors. The city is responsible for environmental investigations or response actions necessary for the city to secure needed rights of access.

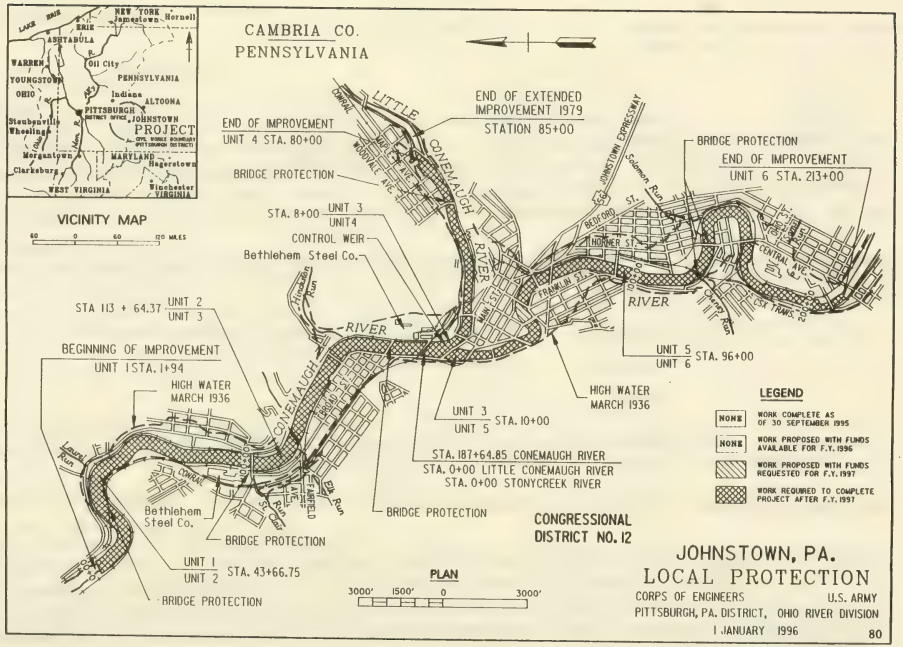
STATUS OF LOCAL COOPERATION: The Project Cooperation Agreement with the city of Johnstown is scheduled for execution in March, 1996.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate for the major rehabilitation project of $32,500,000 is a decrease of $3,000,000 from the latest estimate of $35,500,000 presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	-600,000
Price Escalation on Construction Features	$ -2,400,000
Total	$ -3,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment was completed during the rehabilitation study, and a signed Finding of No Significant Impacts was included in the Major Rehabilitation Evaluation Report, dated March, 1994.

OTHER INFORMATION: The existing Johnstown local flood protection project was authorized and constructed under the Flood Control Act of 1936, as amended, and the Corps of Engineers was given the responsibility for its operation and maintenance. The Energy and Water Development Appropriations Act, 1991, allocated funds for the major rehabilitation from Operations and Maintenance, General appropriations and authorized and directed the Corps of Engineers to undertake a major rehabilitation of the existing project. The Act further directed the Corps to investigate the non-Federally owned buildings, embankments, and walls that were included in the original line of protection for the convenience of the Government and to perform needed repair, rehabilitation, or replacement at Federal expense.


CAMBRIA CO.
PENNSYLVANIA
VICINITY MAP
NEW YORK
Jamestown
Hornell
ERIE
ASHTABULA
WARREN
YOUNGSTOWN
OHIO
Oil City
PENNSYLVANIA
Indiana
ALTOONA
PITTSBURGH
JOHNSTOWN
PROJECT
Steubenville
Wheeling
Morgantown
MARYLAND
Hagerstown
Clarksburg
WEST VIRGINIA
Winchester
VIRGINIA
END OF EXTENDED IMPROVEMENT 1979
STATION 85+00
END OF IMPROVEMENT
UNIT 4 STA. 80+00
BRIDGE PROTECTION
STA. 8+00 UNIT 3 / UNIT4
CONTROL WEIR
Bethlehem Steel Co.
STA 113 + 64.37 UNIT 2 / UNIT 3
BEGINNING OF IMPROVEMENT
UNIT 1STA. 1+94
HIGH WATER MARCH 1936
BRIDGE PROTECTION
END OF IMPROVEMENT
UNIT 6 STA. 213+00
UNIT 5 / UNIT 6 STA. 96+00
HIGH WATER MARCH 1936
UNIT 3 / UNIT 5 STA. 10+00
STA. 187+64.85 CONEMAUGH RIVER
STA. 0+00 LITTLE CONEMAUGH RIVER
STA. 0+00 STONYCREEK RIVER
BRIDGE PROTECTION
Bethlehem Steel Co.
BRIDGE PROTECTION
UNIT 1 / UNIT 2 STA. 43+66.75
BRIDGE PROTECTION
LITTLE CONEMAUGH RIVER
CONEMAUGH RIVER
STONYCREEK RIVER
JOHNSTOWN EXPRESSWAY
Solomon Run
Stoney Creek
Franklin Run
Laurel Run
Ben Franklin Run
Coopers Run
Lilly Run
Ben Franklin Run
BEAVER ST.
HOMER ST.
FRANKLIN ST.
MAIN ST.
CENTRAL AVE.
LEX TRANS CO.
CONRAIL
PA. RR.
FLANNERY AVE.
ST. CLAIR
MOORDALE AVE.
MILL AVE.
PLAN
3000' 1500' 0 3000'
LEGEND
NONE WORK COMPLETE AS OF 30 SEPTEMBER 1995
NONE WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 1997
WORK REQUIRED TO COMPLETE PROJECT AFTER F.Y. 1997
CONGRESSIONAL DISTRICT NO. 12
JOHNSTOWN, PA.
LOCAL PROTECTION
CORPS OF ENGINEERS U.S. ARMY
PITTSBURGH, PA. DISTRICT, OHIO RIVER DIVISION
1 JANUARY 1996
80

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Levisa and Tug Forks of the Big Sandy River and Upper Cumberland River, West Virginia, Virginia and Kentucky (Continuing)

LOCATION: The Levisa and Tug Forks are situated in southwestern West Virginia, southeastern Kentucky, and western Virginia. The two streams converge at the twin towns of Fort Gay, West Virginia, and Louisa, Kentucky, to form the Big Sandy River. The Levisa Fork Basin encompasses 2,326 square miles. The project area includes the mainstem Levisa Fork from Louisa, Kentucky, to Grundy, Virginia (approximately 100 stream miles excluding Fishtrap Lake), and the mainstem Russell Fork from its confluence with the Levisa Fork, to and including Haysi, Virginia (approximately 31 stream miles). The Tug Fork Basin encompasses 1,555 square miles. The project area is comprised of approximately 140 stream miles from Louisa, Kentucky to Welch, West Virginia. The Upper Cumberland River Basin encompasses 1,977 square miles. Approximately 132 stream miles of the Cumberland River from its origin at Harlan, Kentucky, to Cumberland Falls are included in the project area.

DESCRIPTION: The project includes the construction of levees, floodwalls, pump stations, and a flood control reservoir; the floodproofing and evacuation of structures located in the flood hazard areas; and development of relocation sites for the affected areas. Work is complete at Williamson, West Virginia; South Williamson, Kentucky; and Pineville, Kentucky. Work at Matewan, West Virginia and Grundy, Virginia and continuing Detailed Project Reports in the Tug Fork, Levisa Fork and Upper Cumberland River Basins are programmed. All other work is unprogrammed. (See status and completion schedule).

AUTHORIZATION: The Energy and Water Development Appropriations Act, 1981, and Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: Not Applicable. 1/

TOTAL BENEFIT-COST RATIO: Not Applicable. 1/

INITIAL BENEFIT-COST RATIO: Not Applicable. 1/

BASIS OF BENEFIT-COST RATIO: Not Applicable. 1/

1/ An overall project benefit-cost ratio was not computed because the Congress, in the Energy and Water Development Appropriations Act, 1981, found that the benefits attributable to the flood control measures authorized by the Act exceed their costs.

SUMMARIZED FINANCIAL DATA

					ACCUM. PCT. OF EST FED. COST
Estimated Federal Cost			$1,559,911,000		
Programmed Construction		$ 639,729,000			
Unprogrammed Construction		920,182,000			
Estimated Non-Federal Cost			99,110,000	2/	
Programmed Construction		48,901,000			
Cash Contributions	$ 3,901,000				
Other Costs	45,000,000				
Unprogrammed Construction		50,209,000			
Cash Contributions	47,709,000				
Other Costs	2,500,000				
Total Estimated Programmed Construction Cost			688,630,000		
Total Estimated Unprogrammed Construction Cost			970,391,000		
Total Estimated Project Cost			1,659,021,000		
Allocations to 30 September 1995			542,611,000		
Conference Allowance for FY 1996			26,200,000		
Allocation for FY 1996			23,117,000	3/	
Allocations through FY 1996			565,728,000		39
Allocation Requested for FY 1997			6,921,000		43
Programmed Balance to Complete after FY 1997			67,080,000		
Unprogrammed Balance to Complete after FY 1997			920,182,000		

2/ Does not include the following non-Federal contributions, which are not part of the authorized project cost: Pineville, KY -- $17,800,000 in costs allocated to the highway portion of an integrated highway/floodwall element constructed in cooperation with the Commonwealth of Kentucky for Pineville and Wallsend; Grundy, VA -- $ 11,900,000 in costs to the Town of Grundy for construction at a commercial redevelopment site to accommodate businesses displaced by the flood control and highway projects.

3/ Reflects a $522,000 reduction assigned as savings and slippage and $2,561,000 reprogrammed from the project.

STATUS (1 Jan 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Structural Measures		
Pineville, KY	100	
Williamson Area, WV	100	
South Williamson, KY	100	
Barbourville, KY (Cutoff)	100	
Barbourville, KY Levee/Fldwll		100
Matewan, WV	80	Apr 1997
Harlan, KY	63	Indefinite
Williamsburg, KY	10	Indefinite
Middlesborough, KY	5	Indefinite
Grundy, VA	0	Being Determined
Haysi Dam, VA	0	Indefinite
Detailed Project Reports		
Upper Cumberland Basin:		
Harlan, KY	100	
Williamsburg, KY	100	
Middlesborough, KY	100	
Upper Cumberland River Basin		100
Clover Fork, KY	100	
Project Coordination	100	
City of Cumberland, KY	36	Being Determined
Harlan Co., KY	3	Being Determined
Bell Co., KY	0	Indefinite
Knox Co., KY	0	Indefinite
Whitley Co., KY	0	Indefinite
Levisa Fork Basin:		
Grundy, VA	100	
Levisa Basin/Haysi Dam GPS	90	Apr 1997
Buchanan Co., VA	0	Indefinite
City of Martin, KY	0	Indefinite
Pike Co. (Levisa Fork), KY	0	Indefinite
Floyd Co., KY	0	Indefinite

STATUS (1 Jan 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Levisa Fork Basin (Continued)		
Johnson Co., KY	0	Indefinite
Dickenson Co., VA	0	Indefinite
Lawrence Co. (Levisa), KY	0	Indefinite
Tug Fork Basin:		
Matewan, WV	100	
South Williamson, KY	100	
Lower Mingo Co., WV	100	
Upper Mingo Co., WV	100	
Pike Co. (Tug Fork), KY	100	
Tug Fork GDM	100	
Matewan, Hatfield Bottom, WV	100	
Martin Co., KY	45	Feb 1997
Wayne Co., WV	15	Jun 1997
McDowell Co., WV	20	Being Determined
Lower Mingo Co., WV, Supplement	0	Indefinite
Pike Co., KY, Supplement	0	Indefinite
Lawrence Co. (Tug Fork), KY	0	Indefinite
Nonstructural Measures		
Williamson, WV	100	
Matewan, WV	100	
Pineville, KY	100	
South Williamson, KY	96	Sep 1996
Barbourville, KY	68	Sep 1996
Matewan, Hatfield Bottom, WV	50	Indefinite
Williamsburg, KY	2	Indefinite
Harlan, KY	22	Indefinite
Lower Mingo Co., WV	35	Indefinite
Pike County, KY (Tug Fork)	20	Indefinite
Middlesborough, KY	1	Indefinite
Upper Mingo County, WV	5	Indefinite
Levisa Basin, VA & KY	0	Indefinite
Grundy, VA	0	Being Determined

23-577 96 - 37

PHYSICAL DATA			
WILLIAMSON AREA Williamson CBD	Floodwall: Height - 22 ft. avg. Length - 3,900 ft. Pump Stations 2 ea. 30,000 and 70,000 GPM	Lands and Damages: Acres - 18.24 fee 5.76 easement Type - Urban	Relocations: Railroad, highways, city and public utilities
WILLIAMSON AREA West Williamson	Floodwall: Height - 17 ft. avg. Length - 6,237 ft. Pump stations: 1 ea. @ 40,000 GPM	Lands and Damages: Acres - 25.72 fee 31.03 easement Type - Urban	Relocations: Railroad, highways, city and public utilities
WILLIAMSON AREA Snagging and Clearing	N/A	Lands and Damages: Acres - 86.62 easement Type - Riverbank	N/A
MATEWAN	Floodwall/fill: Height - 13 ft. avg. Length - 2,500 ft. Pump stations: 1 ea. @ 18,000 GPM	Lands and Damages: Acres - 45.41 fee 48.88 easement	Relocations: Highway 49 and bridge, Route 9, fire station, town hall and utilities
SOUTH WILLIAMSON	Floodwall: Height - 21 ft. avg. Length - 2,700 ft. Pump Stations: 1 ea. @ 12,000 GPM	Lands and Damages: Acres - 21.52 fee 5.46 easement Type - Residential	Relocations: School cafeteria, highways, county and public utilities
PINEVILLE	Floodwall/Levee/Highway Height - 25 ft. avg. Length - 7,800 ft. Wallsend Levee Height - 25 ft. avg. Length - 4,300 ft.	Lands and Damages: Acres - 118 Type - Urban	Relocations: Wallsend Bridge, Pine Street Bridge

PHYSICAL DATA			
BARBOURVILLE Cutoff	High Flow Diversion Width - 150 ft. Depth - 40 ft. max. Length - 5,000 ft.	Lands and Damages: Acres - 96 Type - Agricultural	Relocations: Tye Bend Rd Bridge
BARBOURVILLE Levee/Floodwall	Levee/Floodwall Height - 26 ft. avg. Length - 19,536 ft.	Lands and Damages: Acres - 144 Type - Urban	Relocations: Highway 459 Bridge
HARLAN (Phase I) Harlan Tunnels	Diversion Tunnels Length - 4 ea @ 2000 ft.	Lands and Damages: Acres - 12 Type - Urban	Relocations: KY Hwy 38 Bridge KY Hwy 72 Bridge
HARLAN (Phase II) Harlan Floodwall	Floodwall/Levee Length - 4,875 ft Height - 24 ft	Lands and Damages: Acres - 16 Type - Urban	Relocations: KY Hwy 11
HARLAN (Phase III) Loyall/Rio Vista Diversion/Levee/Floodwall	Diversion Width - 120 ft channel Depth - 300 ft. max. Length 3,800 ft. Levee/Floodwall Height - 24 ft. Length - 8,600 ft.	Lands and Damages: Acres - 225 Type - Urban	Relocations: KY Hwy 840 Bridge Park Drive Bridge Highway 413 CSX Railway
WILLIAMSBURG	Levee/Floodwall Height - 15 ft. avg. Length - 4,800 ft.	Lands and Damages: Acres - 23 Type - Urban	Relocations: Public utilities
MIDDLESBOROUGH	Channel Length - 5.2 mi.	Lands and Damages: Acres - 132	Relocations: Public utilities

PHYSICAL DATA			
GRUNDY	Floodwall Height - 10 ft. avg Length - 810 ft. Pump station: 1 ea. @ 18,000 GPM	Lands and Damages: Acres - 132 fee 13 tracts, 3 structures	Relocations: Fire station Elementary and junior H.S. Public utilities
HAYSI DAM	Concrete Arch Dam: Height - 202 ft. Length - 825 ft. Spillway: Type - Ogee Weir Length - 170 ft. Discharge - 151,000 cfs Reservoir: Flood Control 28,400 ac.ft. Conservation 8,870 ac.ft. Total 37,270 ac.ft.	Lands and Damages: Acres - 8,335 fee Type - Rural residential & subsistence farms Improvements- Predominantly farm buildings/ residential	Relocations: Virginia Secondary Hwy. 609 Public utilities
NON STRUCTURAL	Primarily voluntary relocations from flood prone areas and floodproofing of unprotected development suitable for such measures. Specific physical data determined during preparation of project reports for each individual project.		
DETAILED PROJECT REPORTS	Detailed project reports that currently are under way for other locations in the authorized project area will be continued or completed.		

JUSTIFICATION: Tug Fork - Historically, repeated flooding in the Tug Fork Valley has brought extensive damage to homes and other developments. During the past 38 years, major floods occurred in January, 1957, March, 1963, March, 1967, April, 1977, and May, 1984. The 1977 flood was the flood of record along much of the Tug Fork. This devastating flood caused valley-wide damages approaching $200 million at 1977 price levels. Six hundred homes were totally destroyed and 4,700 homes were flooded. Physical losses from direct damage to non-residential buildings and contents exceeded $41 million. Over half of all damages occurred in Mingo County, West Virginia. Pike County, Kentucky had about $45 million in damages. The May, 1984 flood resulted in an estimated $117 million in damages along the Tug Fork. As in previous floods, the extensive bituminous coal mining industry of the basin was disrupted due to direct damage, interrupted transportation, and last time because of diversions of the work force to flood fighting and cleanup.

JUSTIFICATION (Continued): Levisa Fork - The same repeated flooding characteristic of the Tug Fork has plagued the Levisa Fork area. During the April, 1977 flood, damages amounted to approximately $93 million at 1977 price levels. The May, 1984 flood caused an additional $90 million in losses along the mainstem of the Levisa Fork and its primary upstream tributary, Russell Fork. Impacts on residential properties, commercial and transportation facilities, and the mining industry were similar to those described in the Tug Fork areas.

Upper Cumberland - Flooding continues to bring recurring damage to the Upper Cumberland area. Total damages in all categories amounted to $34.7 million for this area during the April, 1977 event. The Pineville element protects about 185 acres of urban land containing structures valued at $25.7 million. At Barbourville, the existing project was sandbagged during the April, 1977 flood event, preventing major losses to some 700 acres of urban land containing structures valued at $52.4 million. The currently unprotected area is a mix of agriculture and urban land and contains structures valued at over $6.0 million. During the 1977 flood, no area of Harlan County escaped damage, and four persons drowned and approximately 1,800 persons were left homeless. Total flood damage and associated costs came to almost $31 million.

The following counties qualify as areas of "substantial and persistent" unemployment: West Virginia - Mingo, McDowell, Wayne; Kentucky - Martin, Pike, Lawrence, Floyd, Johnson, Bell, Harlan, Knox, Letcher, Whitley; Virginia - Dickenson.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Structural Measures	
Matewan, West Virginia	
Complete Relocations	$ 427,000
Complete Floodwall/Pump Station Construction	1,790,000
Planning, Engineering and Design	200,000
Construction Management	170,000
Subtotal	$ 2,587,000
Grundy, Virginia	
Engineering and Design	$ 25,000
Subtotal	$ 25,000

FISCAL YEAR 1997 (Continued):

Non Structural Measures	
Grundy, Virginia	
Initiate Land Acquisition	$ 155,000
Initiate Relocations	335,000
Engineering and Design	$ 885,000
Subtotal	$ 1,375,000
Detailed Project Reports	
Huntington District - Tug Fork Basin	
McDowell County, WV	$ 859,000
Martin County, KY	142,000
Wayne County, WV	171,000
Subtotal	$ 1,172,000
Huntington District - Levisa Fork Basin	
Levisa Basin, General Plan of Study, VA & KY	$ 162,000
Subtotal	$ 162,000
Nashville District - Upper Cumberland Basin	
Harlan County, KY	$ 1,000,000
City of Cumberland, KY	600,000
Subtotal	$ 1,600,000
Total	$ 6,921,000

NON-FEDERAL COSTS: In accordance with Section 202, Energy and Water Development Appropriations Act, 1981 and Public Law 99-662, non-Federal interests must bear all costs of operation, maintenance, and replacement of completed facilities. Project elements under construction on 30 April 1986 are exempted from construction cost sharing in accordance with the Water Resources Development Act of 1986. These elements are Williamson Area, West Virginia; South Williamson, Kentucky; Matewan, West Virginia; and Pineville, Kentucky. The Harlan and Barbourville elements were exempted from construction cost sharing by Title I, Section 103 of Water Resources Development Act of 1986. The Hatfield Bottom area of Matewan, West Virginia, was included in the Matewan, West Virginia, element area by the Energy and Water Development Appropriations Act, 1991, Public Law 101-514, and as such, is exempt from construction cost sharing. Construction cost sharing is required for all other elements in accordance with the Water Resources Development Act of 1986. The sponsor of each project element for which construction is initiated after 30 April 1986 must provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the element; pay a cash contribution of no less than 5 percent of the costs allocated to structural flood control to bring the total non-Federal share of structural flood control costs to 25 percent; and bear 25 percent of non-structural flood control costs, including the value of real estate interests and relocations contributed by the sponsor. In accordance with Section 103(m) of the Act, these requirements are subject to the ability of the non-Federal sponsor to pay.

Project Element	Payments During Construction and Reimbursements (Funded/Programmed Work)	Payments During Construction and Reimbursements (Unprogrammed Work)	Annual Operation, Maintenance, and Replacement Costs
Williamson Area, WV	$ 0	$ 0	$ 71,000
Matewan, WV	50	0	30,000
South Williamson, KY	0	0	8,000
Pineville, KY	0	0	20,000
Barbourville, KY	0	0	20,000
Harlan, KY	0	0	20,000
Grundy, VA 4/	46,100,000	0	21,500
Lower Mingo County, WV	1,116,000	1,248,000	0
Williamsburg, KY	528,000	632,000	20,000
Pike County, KY	600,000	1,800,000	0
Upper Mingo County, WV	151,000	1,149,000	0
Middlesborough, KY	356,000	1,044,000	27,000
Martin County, KY	0	2,500,000	0
Haysi Dam, VA & KY	0	6,100,000	486,400
Levisa Basin, VA & KY	0	35,700,000	0
Total Non-Federal Cost	$ 48,901,000	$50,209,000	$ 723,900

4/ Items of cooperation for the Grundy, Virginia element are as follows.

	Total	Federal	Total Non Federal	Non Federal Cost Sharing: Town of Grundy	Non Federal Cost Sharing: Virginia DOT
STRUCTURAL FLOOD CONTROL a/					
Downtown Floodwall	$11,100,000	$10,000,000	$ 1,100,000 b/	$ 1,100,000 b/	$ 0
LERRD's c/ for Floodwall	11,300,000	1,200,000 d/	10,100,000 d/	1,600,000	8,500,000
Subtotal -- Structural	22,400,000	11,200,000	11,200,000	2,700,000	8,500,000
NONSTRUCTURAL FLOOD CONTROL e/					
Least-Cost Plan f/	7,800,000 g/	7,800,000 h/	0	0	0
Incremental Cost of LPP f/	15,900,000	15,900,000 h/	0	0	0
Floodproofing	33,200,000 g/	33,200,000	0	0	0
Evacuation (LERRD's c/)	35,100,000 g/	200,000 h/	34,900,000	(200,000)	35,100,000
Subtotal -- Non-Structural	92,000,000	57,100,000 h/	34,900,000	(200,000)	35,100,000
SUBTOTAL -- FLOOD CONTROL	114,400,000	68,300,000	46,100,000	2,500,000	43,600,000
OTHER COSTS i/	11,900,000	0	11,900,000	11,900,000	0
GRAND TOTAL	$126,300,000	$68,300,000	$58,000,000	$14,400,000	$43,600,000

a/ The minimum non-Federal share of structural flood control costs, including a required 5 percent cash share, is 25 percent, and the maximum non-Federal share is 50 percent. Should the value of lands, easements, rights-of-way, relocations, and borrow and dredged or excavated material disposal areas (LERRD's) exceed 45 percent, the Government will provide LERRD's beyond those with a value equal to 45 percent of total structural flood control costs.

b/ Required 5 percent cash share.

c/ Lands, easements, rights-of-way, relocations, and borrow and dredged or excavated material disposal areas.

d/ LERRD's beyond those with a value of 45 percent of total structural flood control costs.

e/ Nonstructural flood control costs are cost shared 75 percent Federal and 25 percent non-Federal.

f/ Least-cost plan for redevelopment site involves acquiring church and grocery store and protecting two schools with a ring wall. Locally preferred plan (LPP) involves acquiring church and grocery store, relocating schools, and preparing a flood free commercial redevelopment site.

g/ Cost shared nonstructural flood control costs exclude the incremental costs of the LPP above the least-cost plan and are estimated to total $76,100,000. Cost sharing is $57,100,000 Federal and $19,000,000 non-Federal.

h/ The value of LERRD's evacuated by the Virginia DOT (an estimated $35,100,000) exceeds the non-Federal share of cost-shared non-structural flood control by an estimated $16,100,000. Credit for the excess value is to be applied, up to the amount of the incremental costs of the LPP (an estimated $15,900,000), by a Federal contribution toward the incremental costs, which otherwise would be borne by the Town of Grundy. An amount equal to any remaining excess value (an estimated $200,000) is to be paid in cash.

i/ Buildings and parking lot at redevelopment site for businesses displaced by flood control and highway projects.

STATUS OF LOCAL COOPERATION:

The City of Barbourville, Kentucky signed a Section 221 Agreement for the Barbourville element on February 14, 1984, to become project sponsor for operation and maintenance after construction is complete.

The City of Pineville, Kentucky signed a Section 221 Agreement for the Pineville element on February 19, 1983, to become project sponsor for operation and maintenance. The Corps and the Commonwealth of Kentucky executed a cost-sharing arrangement for construction of the four-lane highway portion of the project.

The County of Harlan, Kentucky signed a Section 221 Agreement on October 20, 1988, to become project sponsor for operation and maintenance after construction is complete.

Mingo County, West Virginia, signed a Section 221 Agreement on March 2, 1983, agreeing to operate and maintain features of the project within its jurisdiction. The City of Williamson and Mingo County have agreed to enter into a sub-agreement transferring certain responsibilities to the City.

Pike County, Kentucky, signed a Section 221 Agreement on August 1, 1983, agreeing to act as non-Federal sponsor for features of the project within its jurisdiction.

A Project Cooperation Agreement for the Lower Mingo County, West Virginia, element was executed on November 17, 1992, with the Mingo County Commission.

A Project Cooperation Agreement for the Williamsburg, Kentucky element was executed on March 10, 1995, with the City of Williamsburg, Kentucky.

A Project Cooperation Agreement for the Pike County, Kentucky element was executed on October 14, 1994, with the Pike County Kentucky Fiscal Court.

A Project Cooperation Agreement for the Upper Mingo County, West Virginia element was executed on December 20, 1995, with the Mingo County, West Virginia Commission.

A Project Cooperation Agreement for the Middlesborough, Kentucky element was executed on January 18, 1996 with the City of Middlesborough, Kentucky.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $1,559,728,000 is an increase of $111,928,000 from the latest estimate ($1,447,800,000) presented to Congress (FY 1996). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ 29,000,000
Authorized Modifications	56,184,000
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	24,600,000
Price Escalation on Real Estate	2,144,000
Total	$111,928,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT:

Tug Fork - The final Environmental Impact Statement (EIS) was filed with the Environmental Protection Agency (EPA) on December 3, 1982.

Pineville - The final EIS was filed with EPA on December 22, 1982.

Barbourville - The Finding of No Significant Impact (FONSI) was signed on February 1, 1984.

Harlan - The final EIS was filed with EPA on April 22, 1988. The Record of Decision was signed on August 8, 1988.

Williamsburg - The FONSI was signed on May 19, 1994.

Middlesborough - The FONSI was signed on June 9, 1995.

Detailed Project Reports - EIS's for other areas will be scheduled as studies proceed.

OTHER INFORMATION:

Funds to initiate construction were appropriated in FY 1981. The Urgent Supplemental Appropriations Act, 1984 (Public Law 98-332) provided $21,000,000 for nonstructural measures at this project.

The scheduled completion date of February, 1997 for programmed work at the Martin County, Kentucky Detailed Project Report is an acceleration from the latest completion date of September, 1997 presented to Congress. This earlier completion date is due to streamlining the report process and a reduction of scope.

The Detailed Project Reports for Tributaries-Mingo County, West Virginia and Tributaries-Pike County (Tug Fork), Kentucky have been deleted and replaced by Supplements to Mingo County and Pike County reports. Information on the Lower Mingo County, West Virginia supplement and the Pike County, Kentucky (Tug Fork) Supplement is included for the first time. A completion date of "Indefinite" has been established.

The Detailed Project Reports for Tributaries-Wayne County, West Virginia and Tributaries-Buchanan County, Virginia have been deleted and flood damage assessments and recommendations for these areas will be performed as part of the ongoing overall county studies.

Information on the Buchanan County, Virginia Detailed Project Report is included for the first time. A completion date of "Indefinite" has been established.

The scheduled completion date of "Indefinite" for the Bell County, Kentucky Detailed Project Report is a change from the latest completion date of "Being Determined" presented to Congress.

The scheduled completion date cf "Indefinite" for the Knox County, Kentucky Detailed Project Report is a change from the latest completion date of "Being Determined" presented to Congress.

The scheduled completion date of "Indefinite" for the Whitley County, Kentucky Detailed Project Report is a change from the latest completion date of "Being Determined" pressnted to Congress.

The scheduled completion date of April 1997 for programmed work on the Levisa Fork Basin Virginia and Kentucky General Plan Of Study is a slippage from the latest completion date of September, 1996 presented to Congress.

CORPS OF ENGINEERS — U.S. ARMY

TUG AND LEVISA FORKS

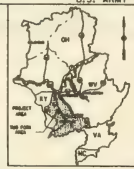
WILLIAMSON, WV. AREA	99%	1%		
MATEWAN, WV				
LANDS & RELOCATIONS	65%	29%	5%	
FLOODWALL AND PUMP STATION	74%	14%	12%	
SOUTH WILLIAMSON, KY				
LANDS & RELOCATIONS	98%	2%		
FLOODWALL AND PUMP STATION	100%			

CUMBERLAND RIVER

PINEVILLE, KY	100%			
BARBOURVILLE, KY				
LANDS & RELOCATIONS	86%	14%		
LEVEES, FLOODWALLS, & PUMP STATION	100%			
HARLAN, KY				
LANDS & RELOCATIONS	71%	13%		16%
CHANNELS & CANALS	72%	12%		25%
LEVEES, FLOODWALLS, & PUMP STATION	47%	25%		28%
WILLIAMSBURG, KY				
LANDS & RELOCATIONS	41%	56%		3%
LEVEES & FLOODWALLS.		44%		56%
MIDDLESBOROUGH, KY				
LANDS & RELOCATIONS	7%	29%		64%
CHANNELS & CANALS				100%

NONSTRUCTURAL WORK

WILLIAMSON, WV.	99%	1%		
MATEWAN, WV	97%	1%	1%	
HATFIELD BOTTOM, WV	18%	49%		33%
SO. WILLIAMSON, WV	88%	11%		1%
LOWER WINGO, WV	30%	27%		43%
PIKE COUNTY, KY	11%	22%		67%
UPPER WINGO, WV	1%	18%		81%
GRUNDY, VA	6%	4%	2.5%	89%
PINEVILLE, KY	100%			
BARBOURVILLE, KY	66%	32%		
HARLAN, KY	22%	6%		72%
WILLIAMSBURG, KY	8%	28%		64%
MIDDLESBOROUGH, KY	2%	31%		67%



VICINITY MAP

SCALE IN MILES

STATUS OF WORK

- WORK COMPLETED
- WORK UNDERWAY WITH FUNDS AVAILABLE FOR F.Y. 1996
- WORK PROPOSED WITH FUND REQUESTED FOR F.Y. 1997
- WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y.1997

LEVISA AND TUG FORKS
OF THE BIG SANDY RIVER
AND
CUMBERLAND RIVER
WEST VIRGINIA,
VIRGINIA AND KENTUCKY

HUNTINGTON DISTRICT
OHIO RIVER DIVISION
1 JANUARY 1996

94

APPROPRIATION TITLE: Construction, General - Multiple Purpose Power

PROJECT: Barkley Dam and Lake Barkley, Kentucky and Tennessee (Continuing)

LOCATION: Barkley Dam is located on the Cumberland River, 30.6 river-miles above its mouth and approximately 160 river-miles below Nashville, Tennessee, in Lyon and Livingston Counties, Kentucky, near Grand Rivers, Kentucky. The remaining work is located on the Lake Barkley portion of the Cumberland River, between Dover, Tennessee and Cumberland City, Tennessee, river miles 89.5 to 102.0.

DESCRIPTION: The completed work is a multiple purpose power project constructed during the period 1957-1969. The remaining work involves the Cross Creek National Wildlife Refuge, which stretches for 12.5 miles along both sides of Lake Barkley, sixty miles upstream of the dam. The Refuge was established in 1962 as mitigation for loss of Kentucky Woodlands Refuge, which was inundated by construction of the lake. The primary purpose of the Cross Creek National Wildlife Refuge is to provide feeding and resting habitat for migratory waterfowl. A system of dikes and water control structures make it possible to regulate water levels to create wetlands habitat conducive to waterfowl management. Over the years shoreline failure has caused Refuge personnel to relocate access roads several times at some locations. In addition to providing maintenance access to the Refuge, the reservoir shoreline also serves in several areas as a natural levee separating the Lake Barkley pool from sub-impoundments of the Refuge. If bank failure were allowed to continue unchecked, water levels of the sub-impoundment would be unregulated and 4100 acres of wetlands and bottomland hardwoods would be lost. The active failure zone includes bald eagle nesting habitat that continues to be lost as nesting trees fall into the lake. At the current rate of erosion, the loss of the Refuge within two to three years is projected.

AUTHORIZATION: Rivers and Harbors Act of 1954.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because construction of the project is substantially complete.

TOTAL BENEFIT-COST RATIO: Not applicable because construction of the project is substantially complete.

INITIAL BENEFIT-COST RATIO: 1.8 to 1 at 2 1/2 percent (FY 1957).

BASIS OF BENEFIT-COST RATIO: Remaining benefits are from the latest available evaluation, dated April, 1993, at October, 1993 price levels.

SUMMARIZED FINANCIAL DATA

		ACCUM. PCT. OF EST. FED. COST
Estimated Federal Cost	$ 157,299,000	
Estimated Non-Federal Cost	0	
Total Estimated Project Cost	$ 157,299,000	
Allocations to 30 September 1995	$ 146,499,000	
Conference Allowance for FY 1996	1,600,000	
Allocation for FY 1996	1,467,000 1/	
Allocations through FY 1996	147,966,000	94
Allocation Requested for FY 1997	$ 4,400,000	97
Programmed Balance to Complete after FY 1997	4,933,000	
Unprogrammed Balance to Complete after FY 1997	0	

STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Remaining Work	0	Being Determined
Entire Project	94	Being Determined

PHYSICAL DATA

Completed Work

Dam: Concrete gravity and rolled earth fill
Spillway: Gate controlled, concrete ogee weir
Power Installation: 4 units @ 32,500 KW; 130,000 KW
Reservoir Capacity: 2,082,000 ac.-ft.
Lock: 110 by 800 feet; 57 foot lift
Canal: 1.5 miles long and 400 feet wide (bottom)

Remaining Work

15 of 25 miles of refuge shoreline will require shoreline treatment consisting of dumped, quarry-run stone averaging 94 pounds. A non-woven geotextile material will be placed between the stone and existing ground. The other 10 miles of shoreline will be protected by vegetative treatment.

1/ Reflects a reduction of $133,000 assigned as savings and slippage.

JUSTIFICATION: Chronic erosion is threatening the integrity of the Cross Creek Wildlife Refuge, which is the mitigation component for the Lake Barkley project. Unless the shoreline is treated prior to failure, the ultimate cost to maintain this project feature will be much higher (in excess of $15,000,000) and damage to wildlife habitat will occur. The recommended plan of quarry-run stone placement and vegetative treatment is technically feasible, environmentally acceptable, and cost effective.

FISCAL YEAR 1997: The amount requested will be applied as follows:

Item	Amount
Continue Construction	$ 4,027,000
Planning, Engineering and Design	38,000
Construction Management	335,000
Total	$ 4,400,000

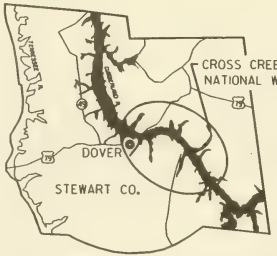
NON-FEDERAL COSTS: None. The project is fully Federal.

STATUS OF LOCAL COOPERATION: Not applicable.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $157,298,644 is the same as the last estimate presented to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The remaining work is covered by an Environmental Assessment, as required by the National Environmental Policy Act. The Reconnaissance Report and the Environmental Assessment were approved in October, 1993. Also, since a portion of the work would occur below ordinary high water, Section 404 of the Clean Water Act is applicable.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1957, and funds to initiate construction were appropriated in FY 1959. Engineering and design for the remaining work was funded from the Operations and Maintenance, General appropriation in FY's 1991 through 1993. The Project Management Plan was approved in July, 1993.



LAKE BARKLEY RM 89.5 – RM 102.0

LOCATION MAP

STATUS OF WORK

- WORK COMPLETED AS OF 30 SEPT. 1995
- WORK PROPOSED WITH FUNDS AVAILABLE FOR F. Y. 1996
- WORK PROPOSED WITH FUNDS FOR F. Y. 1997
- WORK REQUIRED TO COMPLETE THE PROJECT AFTER 1997

BANK STABILIZATION 0% 34% 41% 46%

CUMBERLAND RIVER

BARKLEY DAM AND LAKE BARKLEY, KY

TENNESSEE
NASHVILLE DISTRICT, OHIO RIVER DIVISION
CORPS OF ENGINEERS, U. S. ARMY
1 JANUARY 1996

98

APPROPRIATION TITLE: Construction, General - Dam Safety Assurance (Flood Control)

PROJECT: Dewey Lake, Kentucky (Dam Safety Assurance, Continuing)

LOCATION: The project is located in Floyd County, Kentucky, on Johns Creek of Levisa Fork, a tributary of the Big Sandy River, 79.4 miles above the mouth of the Big Sandy River.

DESCRIPTION: The dam safety assurance project for Dewey Lake involves raising the effective height of the dam and dike by constructing a 3.0-ft. parapet wall; adding a 125-foot wide auxiliary spillway; and restricting the existing spillway to its original design capacity by providing vertical restriction walls on each side. The existing project was completed in 1949.

AUTHORIZATION: Flood Control Act of 1938.

REMAINING BENEFIT-REMAINING COST RATIO: Not Applicable.

TOTAL BENEFIT-COST RATIO: Not Applicable.

INITIAL BENEFIT-COST RATIO: Not Applicable.

BASIS OF BENEFIT-COST RATIO: Not Applicable.

SUMMARIZED FINANCIAL DATA

	Original Project
Actual Federal Cost	$7,845,547
Actual Non-Federal Cost	0
Total Actual Original Project Cost	$7,845,547

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Project Modification			Project Modification	2	Being Determined
Estimated Federal Cost	$18,300,000				
Estimated Non-Federal Cost	0				
Total Estimated Project Cost	$18,300,000				
Allocations to 30 September 1995	$ 440,000				
Conference Allowance for FY 1996	1,400,000				
Allocation for FY 1996	715,000 1/				
Allocations through FY 1996	1,155,000	6			
Allocation Requested for FY 1997	2,000,000	17			
Programmed Balance to Complete after FY 1997	15,145,000				
Unprogrammed Balance to Complete after FY 1997	0				

PHYSICAL DATA

Increase elevation by constructing a 3 foot concrete parapet wall on the top of the dam and Brandykeg Dike; add an auxiliary spillway with a crest elevation of 688.0; and provide vertical restriction walls on the existing spillway to restrict discharge to design capacity.

1/ Reflects a reduction of $116,000 assigned as savings and slippage and $569,000 reprogrammed from the project.

JUSTIFICATION: According to current engineering criteria, spillway capacities at Dewey Lake are inadequate The ability of the dam to resist failure when overtopped is of particular concern. Hydrology and hydraulic studies show that failure of the 118-foot high Dewey Lake Dam could result in a major catastrophe. The project is constructed of rolled earth fill with a central impervious core and has a maximum crest length of 913 feet. According to current engineering criteria, the dam would be overtopped by approximately 1.1 feet for approximately 16 hours during the revised spillway flood, leading to an extremely high risk of dam failure.

FISCAL YEAR 1997: The requested funds will be applied as follows:

Land & Damages	$ 60,000
Initiate Relocations	1,570,000
Engineering and Design	370,000
Total	$2,000,000

NON-FEDERAL COSTS: None. The dam safety assurance modification is being performed at full Federal expense.

STATUS OF LOCAL COOPERATION: Not applicable.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $18,300,000 for the dam safety assurance modification is a decrease of $1,300,000 from the latest estimate ($19,600,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ -1,300,000
Total	$ -1,300,000

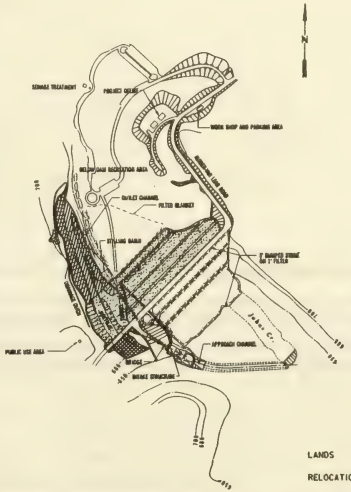
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment is scheduled for completion in May, 1996 and is expected to result in a Finding of No Significant Impacts.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were reprogrammed to the project in FY 1994 from funds appropriated for the initiation of dam safety projects.

The Dewey Lake, Kentucky Spillway Deficiency Report for the Dam Safety Assurance Program was approved by the Assistant Secretary of the Army for Civil Works on June 23, 1994.

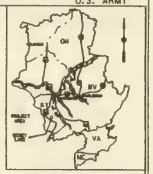
CORPS OF ENGINEERS

U.S. ARMY



PLAN - DAM

SCALE IN FEET



VICINITY MAP

STATE WIDE

STATUS OF WORK

- WORK COMPLETED
- WORK UNDERWAY WITH FUNDS AVAILABLE FOR F.Y. 1996
- WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 1997
- WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y.1997

LANDS	22%	29%	20%	29%
RELOCATIONS	5%	10%	10%	75%
LEVEES AND FLOODWALLS	4%	11%	24%	61%
PUMPING PLANTS	0%	2%	7%	91%

JOHNS CREEK

DEWEY LAKE PROJECT

HUNTINGTON DISTRICT

OHIO RIVER DIVISION

1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Dam Safety Assurance (Flood Control)

PROJECT: Beach City Lake, Muskingum River Lakes, Ohio (Dam Safety Assurance, Continuing)

LOCATION: The project is located near Brewster in Tuscarawas, Holmes, Wayne and Stark Counties, Ohio on Sugar Creek of the Tuscarawas River, a tributary of the Muskingum River, 179.8 miles above the mouth of the Muskingum.

DESCRIPTION: The project will upgrade spillway adequacy, including raising the dam and dike, constructing a parapet wall, raising roadways, performing minor work on access roads and parking areas, and modifying a railroad stoplog closure. The project is part of the Muskingum River Lakes system. Maximum flood control storage is 71,700 acre feet.

AUTHORIZATION: Flood Control Act of 1938. Project construction was initiated in 1934 and completed in 1937 under the Public Works Administration authority.

REMAINING BENEFIT-REMAINING COST RATIO: Not Applicable.

TOTAL BENEFIT-COST RATIO: Not Applicable.

INITIAL BENEFIT-COST RATIO: Not Applicable.

BASIS OF BENEFIT-COST RATIO: Not Applicable.

SUMMARIZED FINANCIAL DATA

Original Project		
Actual Federal Cost		$26,590,000
Actual Non-Federal Cost		8,000,000
Cash Contributions	8,000,000	
Other Costs	0	
Total Original Project Cost		$34,590,000 1/

STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	1	Being Determined

PHYSICAL DATA

Increase elevation to 999.7 feet with embankment fill topped by parapet wall. Other features include raising State Road 212 to the design pool elevation of 999.6, modifying the top stoplog at the railroad to extend protection to elevation 996.4, and acquisition of 1.1 acres of real estate.

1/ Represents total cost of 14-dam Muskingum Basin system. No cost allocations are available for individual elements.

SUMMARIZED FINANCIAL DATA (Continued)

			ACCUM. PCT. OF EST. FED. COST
Project Modification			
Estimated Federal Cost		$ 3,380,000	
Estimated Non-Federal Cost		120,000	
Cash Contribution	120,000		
Other Costs	0		
Total Estimated Project Cost		$ 3,500,000	
Allocations to 30 September 1995		$ 26,000 2/	
Conference Allowance for FY 1996		0	
Allocation for FY 1996		195,000 2/	
Allocations through FY 1996		221,000	7
Allocation Requested for FY 1997		220,000	13
Programmed Balance to Complete after FY 1997		2,939,000	
Unprogrammed Balance to Complete after FY 1997		0	

2/ Reflects funds reprogrammed to the project from funds appropriated for the initiation of dam safety projects.

JUSTIFICATION: Spillway capacities at Beach City Lake are inadequate according to current engineering criteria. The ability of the dam to resist failure when overtopped is of particular concern. Hydrology and hydraulic studies show that failure of the 64-foot high Beach City Dam could result in a major catastrophe. The project is constructed of rolled earth fill with a central impervious core and has a maximum crest length of 5,600 feet. According to current engineering criteria, the dam would be overtopped by approximately 1.1 feet for approximately 16 hours during the revised spillway flood, leading to an extremely high risk of dam failure.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate Dam Safety Corrections	$ 100,000
Planning, Engineering and Design	95,000
Construction Management	25,000
Total	$ 220,000

NON-FEDERAL COSTS: In accordance with Section 1203 of the Water Resources Development Act of 1986, as amended, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments during Construction and Reimbursements	Annual Operation, Maintenance, Repair Replacement, and Rehabilitation Costs
Pay 23 percent of the costs of the dam safety assurance corrective measures that are allocated to project purposes (3.45 percent of total project costs).	$ 120,000	
Total Non-Federal Costs	$ 120,000	

The non-Federal sponsor has agreed to make annual payments concurrently with project construction.

STATUS OF LOCAL COOPERATION:

By letter dated January 30, 1995, the Muskingum Water Conservancy District indicated its willingness to serve as non-Federal sponsor for the dam safety assurance project. The Conservancy District will provide its contribution from its general operating budget. The Project Cooperation Agreement is scheduled for execution in June, 1996.

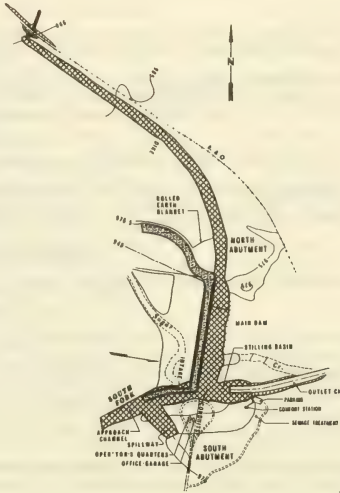
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $3,380,000 is the initial estimate presented to Congress (FY 1997).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement for the Muskingum River Basin was filed with the Counsel on Environmental Quality on July 5, 1977. A separate assessment of the proposed Beach City work resulted in a Finding Of No Significant Impact signed by the Commander, Huntington District in August, 1991.

OTHER INFORMATION: The Beach City Lake, Muskingum River Basin, Ohio Design Memorandum for Correction of Spillway Deficiency was approved by the Acting Assistant Secretary of the Army (Civil Works) in June, 1995.

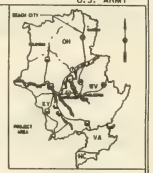
CORPS OF ENGINEERS

U.S. ARMY



PLAN - DAM

SCALE IN FEET



VICINITY MAP

SCALE IN MILES

STATUS OF WORK

- WORK COMPLETED
- WORK UNDERWAY WITH FUNDS AVAILABLE FOR F.Y. 1996
- WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 1997
- WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y.1997

LANDS	6%	95%	
RELOCATIONS	0%	100%	
RESERVOIR	0%	100%	
DAM	0%	6%	94%

MUSKINGUM RIVER

BEACH CITY LAKE

HUNTINGTON DISTRICT

OHIO RIVER DIVISION

1 JANUARY 1996

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation**

a. Channels and Harbors

The program request of $1,121,000 provides for the operational requirements of 4 projects. Requirements include: dredging, engineering and design and maintenance supervision and administration on spurs or side channels.

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Kentucky			
Big Sandy Harbor	$1,025,000	$1,080,000	
	(35,000)	(35,000)	1. None.
	(990,000)	(1,045,000)	2. Perform dredging to maintain navigation channel.
Licking River	30,000	23,000	
	(0)	(0)	1. None.
	(30,000)	(23,000)	2. None.
Ohio			
Portsmouth Harbor	10,000	15,000	
	(0)	(0)	1. None.
	(10,000)	(15,000)	2. None.

1175

OHIO RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (continued)

a. Channels and Harbors (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
West Virginia			
Elk River Harbor	$3,000 (3,000) (0)	$3,000 (3,000) (0)	1. None. 2. None.
TOTAL, Channels and Harbors	$1,068,000 (38,000) (1,030,000)	$1,121,000 (38,000) (1,083,000)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (continued)

b. Locks and Dams

The program request of $109,339,000 provides for the operational requirements of 9 projects. Requirements include: operation and ordinary maintenance of project facilities; labor, supplies and parts for day-to-day functioning; periodic maintenance, repairs and replacements; and contract law enforcement.

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Kentucky			
Green and Barren Rivers	$1,378,000 (1,268,000) (110,000)	$1,835,000 (1,370,000) (465,000)	1. None. 2. None.
Kentucky River	3,944,000 (947,000) (2,997,000)	1,148,000 (1,056,000) (92,000)	1. Conduct periodic inspection in FY 1997. 2. None.
Ohio River Locks and Dams	49,814,000 (26,911,000) (22,903,000)	52,146,000 (28,984,000) (23,162,000)	1. None. 2. Paint tainter gate interiors and repair dam gate seals at Racine Locks and Dam; repair lock gates at Belleville, Greenup and Racine Locks and Dams; repair culvert valves at Willow Island Locks and Dam; repair lock gear machinery at Greenup Locks and Dam. (continued on following page)

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (continued)

b. Locks and Dams (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Kentucky (continued)			
Ohio River Locks and Dams (continued)			2. Dewater main lock, repair lock gates, and repair tainter gate machinery at McAlpine Locks and Dam; fabricate intake screens, replace mooring facilities, and replace safety maintenance vessel at Cannelton Locks and Dam; renovate electronic equipment for control of locks at Newburgh Locks and Dam; inspect river chamber at Smithland Locks and Dam. Repair lock miter gates, seals and sills at Dashields and Hannibal Locks and Dams; repair and paint tainter gates at Pike Island Locks and Dam.
Ohio River Open Channel Work	$5,993,000 (1,379,000) (4,614,000)	$6,533,000 (1,518,000) (5,015,000)	1. Conduct additional channel inspection surveys in FY 1997. 2. Perform clearing and snagging of channel; perform navigation channel dredging.
Pennsylvania			
Allegheny River	$12,476,000 (3,791,000) (8,685,000)	$7,586,000 (3,809,000) (3,777,000)	1. None. 2. Dewater lock chamber and repair lock gates and seals at Lock and Dam 2; renovate lock valves at Lock and Dam 4.

1178

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (continued)

b. Locks and Dams (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Pennsylvania (continued)			
Monongahela River	16,147,000	16,940,000	
	(6,660,000)	(6,936,000)	1. None.
	(9,487,000)	(10,004,000)	2. Repair and paint tainter gates and bulkheads at Locks and Dam 4 and Maxwell Locks and Dam.
Tennessee			
Tennessee River	$13,157,000	$13,612,000	
	(4,669,000)	(4,814,000)	1. None.
	(8,488,000)	(8,798,000)	2. Dewater lock chamber and repair lock gates and seals at Kentucky Lock.
West Virginia			
Kanawha River	11,328,000	8,759,000	
	(5,282,000)	(5,264,000)	1. None.
	(6,046,000)	(3,495,000)	2. Repair upper guard wall at London Locks and Dam; repair seals on dam roller gates at Marmet Locks and Dam.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. **Navigation** (continued)

b. Locks and Dams (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items
			1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
West Virginia (continued)			
Tygart Lake	$1,615,000 (1,091,000) (524,000)	$780,000 (750,000) (30,000)	1. Conduct dam safety assurance study in FY 1996. 2. None.
TOTAL, Locks and Dams	$115,852,000 (51,998,000) (63,854,000)	$109,339,000 (54,501,000) (54,838,000)	
TOTAL--NAVIGATION	$116,920,000 (52,036,000) (64,884,000)	$110,460,000 (54,539,000) (55,921,000)	

1180

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control

a. Reservoirs

The program request of $70,887,000 provides for the operational requirements of 71 flood control projects. Requirements include: operation and ordinary maintenance of project facilities; labor, supplies, materials, and parts for day-to-day functioning; periodic maintenance, repairs, and replacements; and contract law enforcement. The requested amount also includes application of special recreation use fees for recreation areas.

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Indiana			
Brookville Lake	$711,000	$815,000	
	(650,000)	(703,000)	1. None.
	(61,000)	(112,000)	2. None.
Cagles Mill Lake	625,000	661,000	
	(618,000)	(629,000)	1. None.
	(7,000)	(32,000)	2. None.
Cecil M. Harden Lake	762,000	739,000	
	(698,000)	(696,000)	1. None.
	(64,000)	(43,000)	2. None.
Huntington Lake	643,000	733,000	
	(609,000)	(639,000)	1. None.
	(34,000)	(94,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control** (continued)

a. Reservoirs (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Indiana (continued)			
Mississinewa Lake	$1,073,000	$993,000	
	(986,000)	(937,000)	1. None.
	(87,000)	(56,000)	2. None.
Monroe Lake	680,000	749,000	
	(617,000)	(682,000)	1. Conduct periodic inspection and reporting in FY 1997.
	(63,000)	(67,000)	2. None.
Patoka Lake	790,000	605,000	
	(747,000)	(573,000)	1. Conduct water quality model study in FY 1996.
	(43,000)	(32,000)	2. None.
Salamonie Lake	807,000	799,000	
	(663,000)	(708,000)	1. None.
	(144,000)	(91,000)	2. None.
Kentucky			
Barren River Lake	1,898,000	1,968,000	
	(1,750,000)	(1,861,000)	1. None.
	(148,000)	(107,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control** (continued)

a. Reservoirs (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Kentucky (continued)			
Buckhorn Lake	$1,272,000	$1,232,000	
	(975,000)	(1,030,000)	1. None.
	(297,000)	(202,000)	2. None.
Carr Fork Lake	1,593,000	1,397,000	
	(1,332,000)	(1,293,000)	1. None.
	(261,000)	(104,000)	2. None.
Cave Run Lake	979,000	964,000	
	(823,000)	(822,000)	1. None.
	(156,000)	(142,000)	2. None.
Dewey Lake	1,049,000	1,330,000	
	(1,024,000)	(1,330,000)	1. Conduct sedimentation study; perform flood frequency analysis in FY 1997.
	(25,000)	(0)	2. None.

23-577 96 - 38

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control** (continued)

a. Reservoirs (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Kentucky (continued)			
Fishtrap Lake	$1,389,000	$1,944,000	
	(1,382,000)	(1,749,000)	1. Conduct periodic inspection and reporting; perform cultural resources survey; perform flood frequency analysis; prepare drought contingency plan in FY 1997.
	(7,000)	(195,000)	2. None.
Grayson Lake	961,000	1,249,000	
	(934,000)	(997,000)	1. None.
	(27,000)	(252,000)	2. None.
Green River Lake	1,904,000	1,791,000	
	(1,517,000)	(1,669,000)	1. Perform cultural resources survey in FY 1997.
	(387,000)	(122,000)	2. None.
Martins Fork Lake	812,000	692,000	
	(564,000)	(599,000)	1. None.
	(248,000)	(93,000)	2. None.
Nolin Lake	1,956,000	1,725,000	
	(1,687,000)	(1,725,000)	1. None.
	(269,000)	(0)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (continued)

a. Reservoirs (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Kentucky (continued)			
Paintsville Lake	$853,000	$1,041,000	
	(783,000)	(895,000)	1. Conduct periodic inspection and reporting; prepare drought contingency plan in FY 1997.
	(70,000)	(146,000)	2. None.
Rough River Lake	1,780,000	1,790,000	
	(1,503,000)	(1,714,000)	1. Conduct real estate compliance inspections; perform cultural resources survey; collect and analyze water quality data; analyze and evaluate geotechnical data in FY 1997.
	(277,000)	(76,000)	2. None.
Taylorsville Lake	963,000	1,015,000	
	(963,000)	(1,015,000)	1. None.
	(0)	(0)	2. None.
Yatesville Lake	1,078,000	1,067,000	
	(1,016,000)	(999,000)	1. None.
	(62,000)	(68,000)	2. None.
Ohio			
Alum Creek Lake	867,000	693,000	
	(634,000)	(645,000)	1. None.
	(233,000)	(48,000)	2. None.

OHIO RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (continued)

a. Reservoirs (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Ohio (continued)			
Berlin Lake	$2,067,000 (1,387,000) (680,000)	$1,429,000 (1,367,000) (62,000)	1. None. 2. None.
Caesar Creek Lake	1,186,000 (1,136,000) (50,000)	1,142,000 (1,111,000) (31,000)	1. None. 2. None.
Clarence J. Brown Dam and Reservoir	722,000 (691,000) (31,000)	808,000 (711,000) (97,000)	1. None. 2. None.
Deer Creek Lake	681,000 (666,000) (15,000)	628,000 (618,000) (10,000)	1. None. 2. None.
Delaware Lake	606,000 (562,000) (44,000)	671,000 (612,000) (59,000)	1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control** (continued)

a. Reservoirs (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Ohio (continued)			
Dillon Lake	$1,328,000	$503,000	
	(436,000)	(466,000)	1. None.
	(892,000)	(37,000)	2. None.
Michael J. Kirwan Dam and Reservoir	783,000	887,000	
	(697,000)	(856,000)	1. Analyze and evaluate water quality data; update hydraulic data in FY 1997.
	(86,000)	(31,000)	2. None.
Mosquito Creek Lake	1,026,000	899,000	
	(817,000)	(825,000)	1. None.
	(209,000)	(74,000)	2. None.
Muskingum River Lakes	6,739,000	5,793,000	
	(5,541,000)	(5,195,000)	1. None.
	(1,198,000)	(598,000)	2. None.

1187

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control** (continued)

a. Reservoirs (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Ohio (continued)			
North Branch of Kokosing River Lake	$221,000	$312,000	
	(219,000)	(310,000)	1. Conduct periodic inspection and reporting; collect and analyze geotechnical instrumentation data in FY 1997.
	(2,000)	(2,000)	2. None.
Paint Creek Lake	647,000	1,664,000	
	(647,000)	(569,000)	1. Conduct periodic inspection and reporting; prepare drought contingency plan; perform cultural resources survey in FY 1996.
	(0)	(1,095,000)	2. Clean and paint tainter gates at dam.
Tom Jenkins Dam	244,000	367,000	
	(238,000)	(271,000)	1. Conduct periodic inspection and reporting; prepare drought contingency plan in FY 1997.
	(6,000)	(96,000)	2. None.
West Fork of Mill Creek Lake	609,000	558,000	
	(515,000)	(532,000)	1. None.
	(94,000)	(26,000)	2. None.

1188

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control** (continued)

a. Reservoirs (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Ohio (continued)			
William H. Harsha Lake	$850,000	$802,000	
	(838,000)	(786,000)	1. None.
	(12,000)	(16,000)	2. None.
Pennsylvania			
Conemaugh River Lake	1,644,000	2,252,000	
	(965,000)	(1,097,000)	1. Prepare historic property management plan; conduct periodic inspection and reporting in FY 1997.
	(679,000)	(1,155,000)	2. Perform dredging and drift removal in the vicinity of the dam.
Crooked Creek Lake	1,286,000	1,301,000	
	(1,124,000)	(1,113,000)	1. None.
	(162,000)	(188,000)	2. None.
East Branch Clarion River	996,000	1,071,000	
	(811,000)	(1,047,000)	1. Conduct seepage investigation; conduct periodic inspection and reporting; update hydraulic data in FY 1997.
	(185,000)	(24,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control** (continued)

a. Reservoirs (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Pennsylvania (continued)			
Kinzua Dam and	$1,559,000	$1,399,000	
Allegheny	(1,476,000)	(1,330,000)	1. Update master plan in FY 1996.
Reservoir	(83,000)	(69,000)	2. None.
Loyalhanna Lake	1,450,000	1,138,000	
	(890,000)	(914,000)	1. None.
	(560,000)	(224,000)	2. None.
Mahoning Creek Lake	1,884,000	1,317,000	
	(852,000)	(871,000)	1. None.
	(1,032,000)	(446,000)	2. None.
Shenango River	2,289,000	2,418,000	
Lake	(1,964,000)	(1,948,000)	1. None.
	(325,000)	(470,000)	2. None.
Tionesta Lake	1,441,000	1,231,000	
	(1,195,000)	(1,116,000)	1. None.
	(246,000)	(115,000)	2. None.

1190

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control** (continued)

a. Reservoirs (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Pennsylvania (continued)			
Union City Lake	$276,000	$297,000	
	(250,000)	(276,000)	1. Analyze and evaluate water quality data in FY 1997.
	(26,000)	(21,000)	2. None.
Woodcock Creek Lake	1,242,000	919,000	
	(851,000)	(899,000)	1. None.
	(391,000)	(20,000)	2. None.
Youghiogheny River Lake	1,593,000	2,154,000	
	(1,435,000)	(1,785,000)	1. Perform cultural resources study; analyze and evaluate water quality data; update hydraulic data in FY 1997.
	(158,000)	(369,000)	2. None.
Virginia			
John W. Flannagan Dam and Reservoir	1,320,000	1,498,000	
	(1,287,000)	(1,423,000)	1. Perform flood frequency analysis; conduct periodic inspection and reporting in FY 1997.
	(33,000)	(75,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control** (continued)

a. Reservoirs (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Virginia (continued)			
North Fork of Pound River Lake	$368,000	$337,000	
	(368,000)	(317,000)	1. Conduct periodic inspection and reporting; prepare drought contingency plan in FY 1996.
	(0)	(20,000)	2. None.
West Virginia			
Beech Fork Lake	966,000	1,069,000	
	(901,000)	(1,002,000)	1. Prepare drought contingency plan; conduct periodic inspection and reporting in FY 1997.
	(65,000)	(67,000)	2. None.
Bluestone Lake	2,832,000	1,647,000	
	(1,543,000)	(1,120,000)	1. Conduct dam safety assurance studies; perform flood frequency analysis in FY 1996.
	(1,289,000)	(527,000)	2. Perform drift and debris removal activity at dam.
Burnsville Lake	1,140,000	1,427,000	
	(1,133,000)	(1,308,000)	1. Conduct periodic inspection and reporting; conduct bridge inspection; prepare drought contingency plan in FY 1997.
	(7,000)	(119,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control** (continued)

a. Reservoirs (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
West Virginia (continued)			
East Lynn Lake	$1,354,000	$1,520,000	
	(1,302,000)	(1,414,000)	1. None.
	(52,000)	(106,000)	2. None.
R.D. Bailey Lake	1,527,000	1,504,000	
	(1,277,000)	(1,433,000)	1. Conduct periodic inspection and reporting; prepare drought contingency plan in FY 1997.
	(250,000)	(71,000)	2. None.
Stonewall Jackson Lake	957,000	940,000	
	(890,000)	(901,000)	1. None.
	(67,000)	(39,000)	2. None.
Summersville Lake	1,320,000	1,512,000	
	(1,320,000)	(1,512,000)	1. Conduct water control management study; conduct periodic inspection and reporting in FY 1997.
	(0)	(0)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (continued)

a. Reservoirs (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items
West Virginia (continued)			
Sutton Lake	$1,710,000 (1,432,000) (278,000)	$1,481,000 (1,439,000) (42,000)	1. None. 2. None.
TOTAL, Reservoirs	$72,308,000 (60,131,000) (12,177,000)	$70,887,000 (62,404,000) (8,483,000)	

1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-).
2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).

1194

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control** (continued)

b. Channel Improvements, Inspection and Miscellaneous Maintenance

The program request of $1,010,000 provides for the annual and periodic maintenance requirements of 6 local protection projects and the inspection of 140 completed works during the budget year.

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Kentucky			
Middlesboro	$60,000	$83,000	
	(60,000)	(72,000)	1. Update flood damage data and analysis in FY 1997.
	(0)	(11,000)	2. None.
Ohio			
Massillon	20,000	25,000	
	(0)	(0)	1. None.
	(20,000)	(25,000)	2. None.
Roseville	25,000	30,000	
	(0)	(0)	1. None.
	(25,000)	(30,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control** (continued)

b. Channel Improvements, Inspection and Miscellaneous Maintenance (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Pennsylvania			
Johnstown	$540,000	$222,000	
	(10,000)	(12,000)	1. Perform project condition survey in FY 1997.
	(530,000)	(210,000)	2. None.
Punxsutawney	37,000	12,000	
	(37,000)	(12,000)	1. Conduct sedimentation study in FY 1996.
	(0)	(0)	2. None.
West Virginia			
Elkins	10,000	11,000	
	(10,000)	(11,000)	1. Perform project condition survey in FY 1997.
	(0)	(0)	2. None.

1196

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. **Flood Control** (continued)

b. **Channel Improvements, Inspection and Miscellaneous Maintenance** (continued)

Inspection of Completed Works

The $627,000 requested in FY 1997 supports inspections at flood control projects constructed by the Corps and operated and maintained by non-Federal interests. The inspections are conducted to determine the extent of compliance with legal standards and to advise local interests, as necessary, of corrective measures required to ensure that project structures and facilities will continue to safely provide flood protection benefits. These projects consist of features such as channels, levees, flood walls, drainage structures and pumping plants.

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Illinois	$27,000	$46,000	
Indiana	54,000	96,000	
Kentucky	83,000	150,000	
Maryland	3,000	2,000	
New York	12,000	10,000	
Ohio	194,000	185,000	
Pennsylvania	78,000	65,000	
Tennessee	2,000	3,000	
Virginia	11,000	15,000	
West Virginia	33,000	55,000	
Inspection of Completed Works	$497,000 (497,000) (0)	$627,000 (627,000) (0)	1. Additional number of inspections in FY 1997. 2. None.

1197

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (continued)

b. Channel Improvements, Inspection and Miscellaneous Maintenance (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items
			1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-).
			2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
TOTAL, Channel Improvements, Inspection & Miscellaneous Maintenance	$1,189,000 (614,000) (575,000)	$1,010,000 (734,000) (276,000)	
TOTAL--FLOOD CONTROL	$73,497,000 (60,745,000) (12,752,000)	$71,897,000 (63,138,000) (8,759,000)	

1198

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

3. Multiple Purpose Power

The program request of $45,631,000 provides for the operational requirements of 9 multiple purpose projects. Requirements include: operation and ordinary maintenance of project facilities; labor, supplies, materials, and parts for day-to-day functioning; periodic maintenance, repairs, and replacements; and contract law enforcement. The requested amount also includes application of special recreation use fees for recreation areas.

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Kentucky			
Barkley Dam--Lake Barkley	$6,521,000 (3,825,000) (2,696,000)	$8,429,000 (4,065,000) (4,364,000)	1. None. 2. Repair cracks in concrete monoliths which support lock miter gates.
Laurel River Lake	1,261,000 (692,000) (569,000)	1,235,000 (633,000) (602,000)	1. None. 2. None.
Wolf Creek Dam--Lake Cumberland	6,159,000 (2,739,000) (3,420,000)	5,996,000 (2,744,000) (3,252,000)	1. None. 2. Replace generator power cables to switchyard; replace power plant interior lighting, ceiling tiles and noise dampening.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

3. **Multiple Purpose Power** (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Tennessee			
Center Hill Lake	$4,751,000 (2,694,000) (2,057,000)	$4,938,000 (2,818,000) (2,120,000)	1. None. 2. Construct weir on Caney Fork River to regulate stream flow for water quality.
Cheatham Lock and Dam	6,441,000 (2,416,000) (4,025,000)	5,559,000 (2,492,000) (3,067,000)	1. None. 2. None.
Cordell Hull Dam and Reservoir	3,976,000 (2,384,000) (1,592,000)	4,694,000 (2,316,000) (2,378,000)	1. None. 2. Repair concrete cracks in upper lock guard wall.
Dale Hollow Lake	3,885,000 (2,669,000) (1,216,000)	3,908,000 (2,692,000) (1,216,000)	1. None. 2. None.
J. Percy Priest Dam and Reservoir	3,910,000 (2,292,000) (1,618,000)	4,039,000 (2,427,000) (1,612,000)	1. None. 2. Rewind power plant generator.

1200

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

3. **Multiple Purpose Power** (continued)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 TOTAL (Operations) (Maintenance)	FY 1997 TOTAL (Operations) (Maintenance)	Reason For Change and Major Maintenance Items 1. Reason for Change in Operations from FY 1996 to FY 1997 (10% +/-). 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000).
Tennessee (continued)			
Old Hickory Lock and Dam	$6,985,000 (3,093,000) (3,892,000)	$6,833,000 (3,390,000) (3,443,000)	1. None. 2. Repair concrete cracks in upper lock guard wall; upgrade power supply to Nashville Repair Station.
TOTAL--MULTIPLE PURPOSE POWER	$43,889,000 (22,804,000) (21,085,000)	$45,631,000 (23,577,000) (22,054,000)	
GRAND TOTAL--OHIO RIVER DIVISION	$234,306,000 (135,585,000) (98,721,000)	$227,988,000 (141,254,000) (86,734,000)	

1201

FISCAL YEAR 1997 STATUS REPORT TO CONGRESS
CIVIL WORKS ACTIVITIES
IN THE PACIFIC OCEAN DIVISION
COLONEL ROBIN R. CABABA, ACTING DIVISION ENGINEER

AREA OF RESPONSIBILITY

Headquartered at the "Crossroads of the Pacific" in Honolulu, Hawaii, the Pacific Ocean Division proudly represents the US Army Corps of Engineers. We are able to effectively and efficiently operate in an area of responsibility that stretches across five time zones and covers over six million square miles of the Pacific Ocean. Our Civil Works' area of responsibility includes the State of Hawaii, the Commonwealth of the Northern Mariana Islands, and the territories of American Samoa and Guam. Although not related to our Civil Works program, the Pacific Ocean Division also has an important military construction mission, supporting US CINCPAC, that encompasses the State of Hawaii, Kwajalein Atoll, Japan, and the Republic of Korea.

The origins of the Pacific Ocean Division trace back to 1905 when Congress authorized Hawaii's first Civil Works project -- improvements to Honolulu Harbor. Since then, we have established a tradition of planning, designing, and constructing vital water resource projects throughout the Pacific. Our projects help reduce the threat of flooding, improve navigation conditions, and deter coastal erosion and inundation. Perhaps what is more important, our projects help contribute to improving the quality of life and economic well being of the islands and people that we serve in the Pacific.

Our Division's presence in the Pacific allows us to understand and work with a diversity of island cultures, environments, and economies. Although beautiful, the islands also present many challenges that are unlike those that many of us have experienced or are accustomed to in our daily life. The islands are also vulnerable to nature's fury. Time and distance magnify the devastation created by natural disasters. The environmental, social, and economic consequences are long lasting.

As members of our island community and as participants in the Federal response plan, we are proud of our ability to deploy, on a moment's notice, to provide assistance when these natural disasters strike.

This status report will highlight the Pacific Ocean Division's Fiscal Years 1995 and 1996 activities and present our budget request of $5,290,000 for Fiscal Year 1997.

PERFORMANCE

In Fiscal Year 1995, the Pacific Ocean Division achieved an expenditure rate of 92 percent of our total programmed funds. We plan to continue reviewing our management processes and procedures to improve our budget and schedule execution in Fiscal Years 1996, 1997, and beyond.

FISCAL YEAR 1995 AND 1996 ACTIVITIES AND FISCAL YEAR 1997 BUDGET REQUEST

Our Fiscal Year 1997 budget request of $5,290,000 includes $1,065,000 for General investigations, $3,600,000 for Construction, General, and $625,000 for Operation and Maintenance, General.

GENERAL INVESTIGATIONS

The Pacific Ocean Division's General Investigations activities and budget request of $1,065,000 include the following.

Wailupe Stream Flood Control Study, Oahu

The Wailupe Stream Flood Control study, on the island of Oahu, is evaluating alternatives to provide flood protection to residential and commercial structures within the Wailupe Valley drainage basin. Feasibility phase investigations including economic, environmental, and engineering studies were conducted in Fiscal Year 1995 and are on-going in Fiscal Year 1996. We are requesting Fiscal Year 1997 funds of $230,000 for continuation of feasibility investigations which are scheduled for completion in Fiscal Year 1998.

Barbers Point Harbor, Oahu

The Barbers Point Deep Draft Harbor is located on the island of Oahu. Reconnaissance studies to evaluate alternative channel and basin modifications to accommodate increasing shipping demand at the harbor were completed in Fiscal Year 1995. The studies determined that continued Federal participation in feasibility phase investigations is warranted. The State of Hawaii has appropriated funding for the feasibility phase studies. The Feasibility Cost Sharing Agreement was executed in March 1996. We are requesting Fiscal Year 1997 funds totaling $350,000 to continue with feasibility phase investigations which are scheduled for completion in Fiscal Year 1999.

Kikiaola Harbor, Kauai

Kikiaola Small Boat Harbor on the island of Kauai was originally constructed by the State of Hawaii in 1959. Preconstruction engineering and design activities are currently underway to modify the harbor to reduce shoaling and provide additional wave protection and berthing for approximately 100 vessels. Fiscal Year 1995 activities, which are continuing in Fiscal Year 1996, included updated engineering, environmental, and economic analyses and preparation of a reevaluation report. We are requesting $365,000 to continue preconstruction engineering and design activities which are scheduled for completion in Fiscal Year 1998.

Maui Second Harbor, Maui

The island of Maui has only one commercial port at Kahului Harbor. The purpose of the Maui Second Harbor Study is to evaluate alternative commercial harbor sites. In addition, modifications to Kahului Harbor will also be considered. Reconnaissance studies were initiated in Fiscal Year 1996. We are requesting $120,000 in Fiscal Year 1997 to complete reconnaissance studies and continue into feasibility phase investigations.

Kaumalapau Harbor, Lanai

Kaumalapau Harbor is the island of Lanai's only commercial harbor. As directed in both the Fiscal Years 1993 and 1994 Energy and Water Development Appropriations Acts, preconstruction engineering and design activities were continued in 1995. Activities included the preparation of a design report, environmental studies, and hydraulic model investigations. The design report is scheduled to be completed in Fiscal Year 1996.

CONSTRUCTION, GENERAL

The Pacific Ocean Division's Construction, General activities and Fiscal Year 1997 budget request of $3,600,000 include the following projects.

Alenaio Stream Flood Control, Hawaii

A construction contract was awarded in November 1994 for the $15 million Alenaio Stream Flood Control project on the island of Hawaii. The project will prevent flood damages to Hilo, the urban center and County seat of the island of Hawaii. Construction activities are continuing in Fiscal Year 1996. We are requesting $500,000 to complete construction of the project in Fiscal Year 1997.

Kawaihae Small Boat Harbor, Hawaii

The $7 million Kawaihae Small Boat Harbor project on the Big Island of Hawaii will provide an improved harbor facility and increased berthing capacity for commercial navigation. Issues regarding economic concerns and the State of Hawaii's financial capability to cost share the project were resolved in Fiscal Year 1995. The Project Cooperation Agreement was executed in August 1995 and a construction contract was awarded in November 1995. We are using our programmed carryover to fund construction in Fiscal Year 1996 and are requesting $2,238,000 in Fiscal Year 1997 to complete construction of this project.

Maalaea Small Boat Harbor, Maui

The Maalaea Small Boat Harbor project is located on the island of Maui. The project will modify the existing harbor breakwater to eliminate adverse navigation conditions and increase the berthing capacity for commercial craft. The State of Hawaii has reaffirmed their financial capability to cost share the project. However, unresolved environmental concerns have delayed construction award of the project into Fiscal Year 1997. As indicated to the committee last year, the US Fish and Wildlife Service and the State of Hawaii's Coastal Zone Management are concerned about the potential impacts of the project on the coral reefs in the area. We are currently participating in a joint task force with State resource agencies to develop environmental mitigation measures. In anticipation of the resolution of the environmental issues, we are requesting $517,000 to initiate construction in Fiscal Year 1997.

Iao Stream, Maui

The Iao Stream Flood Control Project, located on the island of Maui, was completed in 1981. High velocity storm flows have caused extensive damage to the project's existing levee system. A reconnaissance report was completed in Fiscal Year 1995. Design activities are being conducted in Fiscal Year 1996 with Operation and Maintenance, General funding. Activities include environmental, design, and hydraulic model studies and preparation of a Design Memorandum. We are requesting $345,000 in Fiscal Year 1997 to continue with preconstruction design activities under the Construction, General appropriation.

Kawainui Marsh, Oahu

The Kawainui Marsh Flood Control Project is located on the Island of Oahu. This $6 million Continuing Authorities construction project will provide protection to approximately 2,000 residential, public, and commercial structures adjacent to the largest wetland in the State of Hawaii. A construction contract was awarded in September 1994. Construction, which is continuing in Fiscal Year 1996, is scheduled for completion in Fiscal Year 1997 and is funded under the Continuing Authorities Appropriation.

OPERATION AND MAINTENANCE

Our Fiscal Year 1997 budget request for Operation and Maintenance totals $625,000. The Pacific Ocean Division's annual Operation and Maintenance activities included inspections of completed works, dredge material studies, project condition surveys, and operation of the Regional Visitor Center at Fort DeRussy.

EMERGENCY RESPONSE

Thankfully, there were no major natural disasters within the past year in the Pacific Ocean Division's area of responsibility. However, the Pacific Ocean Division did provided reimbursable emergency response and assistance to the devastating collapse of the Sampoong Department Store in Korea and to Operation Joint Endeavor in Bosnia. On June 29, 1995, the Sampoong Department Store in Seoul, Korea collapsed trapping and injuring over 1,000 people. At the request of the US Department of State, POD's "System to Locate Survivors" emergency response team was activated and on site within 28 hours of the collapse assisting in the location of survivors. In support of Operation Joint Endeavor in Bosnia, POD currently has deployed six staff members, comprised of four NCOs, an officer, and one civilian.

SUMMARY

In summary, with the support of this committee, our Fiscal Year 1997 program request of $5,290,000 will allow the Pacific Ocean Division to continue to provide quality and environmentally sound water resources projects for the people and islands of the Pacific.

Although our Civil Works program and projects are modest in comparison to others across the nation, they have an enormously important impact on the economic and social well being of the island communities that are served by the Pacific Ocean Division.

U. S. ARMY CORPS OF ENGINEERS
CIVIL WORKS PROGRAM

CONGRESSIONAL SUBMISSION
FISCAL YEAR 1997

PACIFIC OCEAN DIVISION

Budgetary information will not be released outside the Department of the Army until 18 March 1996.

JUSTIFICATION OF ESTIMATES FOR CIVIL FUNCTIONS ACTIVITIES
DEPARTMENT OF THE ARMY
FISCAL YEAR 1997

PACIFIC OCEAN DIVISION

Table of Contents

	Page No.
Surveys	
Barbers Point Harbor Modification, Oahu, Hawaii	2
Maui Second Harbor, Maui, Hawaii	4
Wailupe Stream Flood Control Study, Oahu, Hawaii	6
Preconstruction Engineering and Design	
Kikiaola Small Boat Harbor, Kauai, Hawaii	8
Construction	
Alenaio Stream, Hawaii, Hawaii	23
Iao Stream Flood Control, Maui, Hawaii	19
Kawaihae Small Boat Harbor, Hawaii, Hawaii	10
Maalaea Harbor, Maui, Hawaii	14
Operation and Maintenance	27

1210

JUSTIFICATION OF ESTIMATES FOR CIVIL FUNCTIONS ACTIVITIES
DEPARTMENT OF THE ARMY
FISCAL YEAR 1997

SUMMARY PACIFIC OCEAN DIVISION

	FY 1996 Allocations $	FY 1997 Request $	Increase or Decrease $
General Investigations			
Survey	392,000	700,000	+308,000
Preconstruction Engineering and Design	126,000	365,000	+239,000
Subtotal General Investigations	(518,000)	(1,065,000)	(+547,000)
Construction, General	2,746,000	3,600,000	+854,000
Construction	(2,746,000)	(3,600,000)	(+854,000)
Operation and Maintenance, General			
Project Operation	831,000	529,000	-302,000
Project Maintenance	660,000	96,000	-564,000
Subtotal Operation and Maintenance	(1,491,000)	(625,000)	(-866,000)
GRAND TOTAL, PACIFIC OCEAN DIVISION	4,755,000	5,290,000	+535,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
1. SURVEYS - NEW					
1a. Navigation Studies: None.					
1b. Flood Damage Prevention Studies: None.					
1c. Shoreline Protection Studies: None.					
1d. Special Studies: None.					
1e. Comprehensive Studies: None.					
1f. Project Review Studies: None.					
2. SURVEYS - CONTINUING					
2a. Navigation Studies: The amount of $470,000 is requested in Fiscal Year 1997 to complete one reconnaissance study and continue one feasibility study.					
HAWAII					
Barbers Point Harbor Modification, Oahu, HI	1,243,000	375,000	148,000	350,000	370,000

Barbers Point Harbor is located on the Ewa plains along the western coast of the island Oahu, Hawaii, approximately 20 road miles west of Honolulu and is situated adjacent to the 1,367-acre James Campbell Industrial Park (Oahu's major industrial area) and the 800-acre Kapolei Business Park. The harbor was originally intended to serve as a deepwater relief harbor for the port of Honolulu and to service the shipping requirements of the industries at Campbell Industrial Park, thus eliminating or reducing the need for considerable overland transshipment expense involved in importing and exporting via Honolulu Harbor and the congested Honolulu metropolitan area. However, the rapid development and growth of the Ewa plains region and the establishment of the community of Kapolei as Oahu's second urban center near Barbers Point have placed increased importance and demand on the harbor to service the growing communities, businesses, and industries in the Ewa area. The amount of cargo processed through Barbers Point Harbor has increased by 1,300 percent from its completion in 1985 thru 1991. Within the next ten years it is projected that total tonnage for Barbers Point Harbor will continue to increase

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2a. Surveys-Continuing: Navigation, Hawaii, Barbers Point Harbor Modification, Oahu (Continued)

due to the ongoing development of West Oahu. To meet the increased and growing demand in the area, both current and potential users of Barbers Point Harbor have identified the need to deepen and expand the harbor to accommodate larger sized vessels. The present harbor depth of 38 feet increases transportation costs to shippers as they must light-load larger vessels or continue to use less efficient smaller ones.

The local sponsor is the State Department of Transportation. They recognize the critical role that the harbor plays and have contributed $346,000 to conduct both numerical and hydraulic model and navigation studies for various deepening and expansion alternatives for the harbor in conjunction with the Corps' Monitoring of Completed Coastal Projects program. The State fully understands the cost-sharing requirements to conduct the feasibility study and is fully committed to active participation with the Corps of Engineers.

Fiscal Year 1996 funds are being used to continue into the feasibility phase of the study once the reconnaissance report is certified to be in accord with policy. Studies to be conducted during the fiscal year include initiation of numerical and physical model studies to investigate optimization of ship under-keel clearance and harbor response to differing conditions, and initation of economic, environmental, geotechnical and hydraulic investigations. Fiscal year 1997 funds will be used to continue these studies. The preliminary estimated cost of the feasibility phase is $1,736,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,111,000
Reconnaissance Phase (Federal)	$375,000
Feasibility Phase (Federal)	$868,000
Feasibility Phase (Non-Federal)	$868,000

The reconnaissance study phase is scheduled for completion in February 1996 and the feasibility cost-sharing agreement is scheduled for execution with the local sponsor in March 1996. Completion of the feasibility study is being determined.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
2a. Surveys-Continuing: Navigation, Hawaii					
Maui Second Harbor, Maui, HI	541,000	0	96,000	120,000	325,000

The island of Maui, located approximately 100 miles southeast of Honolulu, is the second largest in size of the eight major islands of Hawaii. Maui consists of 728 square miles of land area and 120 miles of coastline and is the economic center for Maui County which also includes the islands of Molokai, Lanai, and Kahoolawe. Maui County has the second largest economy in the state after the City and County of Honolulu. Kahului Harbor is the only commercial port on the island.

Maui's expanding economy has resulted in increased pressures on Kahului Harbor's limited facilities. Congestion at the harbor currently results in scheduling conflicts and excess cargo handling at an average annual cost of $62,000. The growth trend in cargo tonnage moving through Kahului Harbor was 6 percent per year between 1970 and 1991, and is projected at 3 percent per year though the year 2010. An accidental closure due to a shipping accident or other natural disaster would leave Maui with no alternative port. An accidental closure is projected to last 20-40 days and could result in an average annual economic disruption of $1.3 to $2.4 million due to emergency food shipments, construction industry disruptions, wholesale and retail sales losses, and increased transportation costs once the harbor reopens. Other potential impacts include petroleum shortages, power generation disruptions, and agricultural revenue losses. Virtually every segment of Maui's $2.6 billion economy (gross business receipts) would experience an economic impact.

In 1991, the State Legislature passed an act to fund a study to assess alternative second commercial harbor sites on Maui. In response to the act, the State of Hawaii Department of Transportation requested assistance from the Honolulu Engineer District in conducting the study. A reimbursable study was subsequently completed in April 1995 which investigated alternative harbor sites to relieve congestion at Kahului Harbor and alleviate Maui's one-harbor dependency. The State Department of Transportation submitted a letter in November 1994 requesting a study be conducted to determine Federal interest in potential solutions for a second commercial harbor on the island of Maui and modification of the existing Kahului Harbor to reduce the likelihood of a harbor closure. The local sponsor fully understands the feasibility study and construction cost-sharing requirements.

Fiscal Year 1996 funds are being used to initiate the reconnaissance phase at full Federal expense. Studies are concentrating on evaluation of Federal interest in modifying Kahului Harbor. Additional engineering studies, economic analyses, real estate appraisals, and environmental evaluations and coordination, are being conducted to supplement and incorporate the results of the reimbursable study report into a Federally acceptable reconnaissance study. Fiscal Year 1997 funds will be used to complete the reconnaissance phase and initiate negotiations for execution of the feasibility cost

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2a. Surveys-Continuing: Navigation, Hawaii, Maui Second Harbor, Maui (Continued)

sharing agreement once the reconnaissance report is certified to be in accord with policy. The preliminary estimated cost of the feasibility phase is $650,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	866,000
Reconnaissance Phase (Federal)	216,000
Feasibility Phase (Federal)	325,000
Feasibility Phase (Non-Federal)	325,000

The reconnaissance report is scheduled for completion in January 1997 and the FCSA is scheduled for execution in August 1997. Completion date of the feasibility study is being determined.

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
2b. Flood Damage Prevention Studies: The amount of $230,000 is requested in Fiscal Year 1997 to continue one feasibility study.					
HAWAII					
Wailupe Stream Flood Control Study, Oahu, HI	1,016,000	436,000	148,000	230,000	202,000

The Wailupe Stream drainage basin is located along the southeast coast of the Island of Oahu, the population, economic and governmental center of the State of Hawaii. The Wailupe Stream basin extends from the Koolau Range to Maunalua Bay and is bounded by Hawaii Loa and Wiliwilinui Ridges. The rectangular shaped drainage basin of 3.2 square miles was formed by stream erosion of the Koolau mountain range, and is about 3.5 miles long and averages less than a mile wide. The valley floor, especially the coastal lowland area, is highly developed as the Aina Haina residential community. Several floods have occurred along the Wailupe Stream since Aina Haina was developed. Damages from the flood of March 5-6, 1958 and December 16-18, 1967 were significant and pointed to the need for additional flood protection. The flood of March 1958 resulted from high-intensity rainfall which caused flooding in numerous areas around the island. The Wailupe Stream drainage basin sustained flooding because of inadequate channel capacity. Accumulated boulders and debris along the stream also impeded the flood flows. Large quantities of silt, boulders and debris carried downstream during the storm further reduced the stream capacity along the lower reach. The resulting overbank flows, together with overland sheet flows, inundated residential and commercial properties and Kalanianaole Highway. The December 1967 flood resulted from overland sheet flow and overbanking of Wailupe Stream. The flood had a peak discharge of 3,600 cfs, the highest recorded for this stream. Flooding was most severe along both banks downstream of Kalanianaole Highway. Although accurate damage estimates are not available, it was reported that damages would have been much higher if the channel had not been cleared by the City and County maintenance crews shortly before the flood.

The Urban Flood Control reconnaissance study concluded that the Wailupe Stream drainage basin has the potential for substantial flood damages. Within the Wailupe 100-year floodplain, there are more than 550 residential and commercial structures. Estimated inundation damage by the 100-year storm under existing conditions is more than $34 million. The potential for high velocity flows during rare storms adds to the risks of health and safety of the residents. Total structure and contents value at Wailupe is estimated at more than $100 million. Probable solutions being evaluated include debris basins, concrete lined channel sections, bridge modifications and necessary lands, easements and rights-of-way for the construction and operation of these structures. Local sponsors, the State of Hawaii and the City and County of Honolulu, provided letters of support in March 1993 and the FCSA was executed in February 1994.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

2b. Flood Damage Prevention Studies: Hawaii, Wailupe Stream Flood Control, Oahu (Continued)

Fiscal Year 1996 funds are being used to continue feasibility level economic, hydrologic, hydraulic, geotechnical, and environmental investigations and to initiate real estate studies. Fiscal Year 1997 funds will be used to prepare, review, and revise the feasibility report, conduct the feasibility review conference, and prepare the Project Management Plan. The preliminary estimated cost of the feasibility phase is $1,680,000, which is shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of cost sharing is as follows:

Total Estimated Study Cost	$1,856,000
Reconnaissance Phase (Federal)	$176,000
Feasibility Phase (Federal)	$840,000
Feasibility Phase (Non-Federal)	$840,000

Completion date of the feasibility report is being determined.

2c. Shoreline Protection Studies: None.

2d. Special Studies: None.

2e. Comprehensive Studies: None.

2f. Project Review Studies: None.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

3. PRECONSTRUCTION ENGINEERING AND DESIGN - NEW

a. Navigation: None.

b. Flood Control: None

c. Shoreline Protection: None.

d. Multiple Purpose Projects: None.

4. PRECONSTRUCTION ENGINEERING AND DESIGN - CONTINUING

a. Navigation: The amount of $365,000 is requested in Fiscal Year 1997 to continue PED for one project.

HAWAII

Kikiaola Small Boat Harbor, Kauai, HI	1,169,000	450,000	126,000	365,000	228,000

Kikiaola Harbor is located on the southwest coast of the island of Kauai, about 1 mile southeast of Kekaha and approximately 3 miles northwest of Waimea. The State of Hawaii operates Kikiaola Harbor and originally constructed the harbor in 1959. The existing harbor has a natural depth of 6 feet at the entrance which frequently produces steep breaking waves. Navigating this channel is hazardous and breaking waves often prevent craft from entering or leaving the harbor. The east breakwater is too low and major overtopping occurs during storms. The shallow, narrow entrance channel and overtopping waves severely limit the utilization of the existing harbor. Other navigation problems include the lack of protective berthing, inadequate shoreside facilities, and shoaling in the channels and harbor basin. Modification to the harbor will allow full development of adequate facilities to serve the navigation needs of the area, and also serve as a haven for refuge during storms. A General Design Memorandum (GDM) and Final Environmental Impact Statement (EIS) were completed in September 1980 and approved by the Director of Civil Works in September 1981. The recommended plan would provide berthing for about 105 boats. The plan of improvement consists of dredging a 725-foot long, 105 to 205-foot wide and 12-foot deep entrance channel; dredging a 320-foot long 70 to 105-foot wide, 8-foot deep access channel; removing 150 feet from the existing outer east stub breakwater; raising the east breakwater crest by 3-4 feet and resloping the seaward slope of the east breakwater; removal and reconstruction of the 85 foot long inner east stub breakwater; and modification of 220 feet of the existing west breakwater. The average annual benefits, as indicated in the 1980 GDM, amount to $274,000, primarily

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

4a. Preconstruction Engineering and Design - Continuing: Navigation, Hawaii, Kikiaola Small Boat Harbor, Kauai (Continued)

attributed to recreation navigation. The benefit to cost ratio was 1.2 to 1. The estimated cost of the recommended project is $6,978,000 with an estimated Federal cost of $6,197,000, including US Coast Guard cost of $20,000, and an estimated non-Federal cost of $781,000. The current benefit to cost ratio is 1.3 to 1 and benefits are primarily attributed to storm

damage reduction. The project sponsor is the State Department of Land and Natural Resources. The local sponsor has indicated State planning and construction funds for Kikiaola Harbor will be included in its Fiscal Year 1996-1997 biennial budget.

The project was authorized by Section 101 of the River and Harbor Act of 1968 (PL 90-483). Cost sharing requirements are 90% Federal and 10% non-Federal during construction of the navigation portion of the project as outlined under the Water Resource Development Act of 1986.

Fiscal Year 1996 funds are being used to continue the economic analysis, the Environmental Assessment, and the General Reevaluation Report. Fiscal Year 1997 funds will be used to initiate plans and specifications, the permit process, and develop and negotiate the Project Cooperation Agreement with the local sponsor. Completion date for preconstruction engineering and design is being determined.

4b. Flood Control: None

4c. Shoreline Protection: None.

4d. Multiple Purpose Projects: None.

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Kawaihae Small Boat Harbor, Hawaii, Hawaii (Continuing)

LOCATION: Kawaihae Harbor is located on the northwest coast of the island of Hawaii, approximately 85 miles northwest from Hilo Harbor in the County of Hawaii, State of Hawaii.

DESCRIPTION: The project consists of an 850-foot long, 120-foot wide, and 12-foot deep entrance channel; and a 1.2 acre turning basin 12-foot deep. The protective structures consist of an 850-foot long breakwater (existing) and a 367-foot long breakwater extension on the west side; and a 740-foot long revetted mole on the east side. The harbor will provide berthing for 90 vessels.

AUTHORIZATION: Section 301 of the Rivers and Harbors Act of 1965 (Public Law 89-298) in accordance with provisions contained in House Document No. 75, 89th Congress, 1st session, dated February 4, 1965.

REMAINING BENEFIT-REMAINING COST RATIO: 7.1 to 1 at 3 1/4 percent.

TOTAL BENEFIT-COST RATIO: 4.2 to 1 at 3 1/4 percent.

INITIAL BENEFIT-COST RATIO: 2.4 to 1 at 3 1/4 percent (FY 1991).

BASIS OF BENEFIT-COST RATIO: Benefits are from the general reevaluation report completed in May 1995 at October 1995 price levels.

SUMMARIZED FINANCIAL DATA		STATUS (1 JAN 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Appropriation Requirement (CoE)	$6,178,000	Entire Project	0	Being Determined
Estimated Total Appropriation Requirement	$6,178,000			
Future Non-Federal Reimbursement	689,000			
Estimated Federal Cost (Ultimate)	$5,489,000			

SUMMARIZED FINANCIAL DATA (Continued)

Estimated Non-Federal Cost		$1,378,000		
Cash Contributions	$689,000			
Reimbursements	689,000			
Total Estimated Project Cost		$6,867,000		
			ACCUM PCT OF EST FED COST	
Allocations to 30 September 1995		$3,940,000		
Conference Allowance for FY 1996		0		
Allocation for FY 1996		0		
Allocations through FY 1996		3,940,000	64	
Allocation Requested for FY 1997		2,238,000	100	
Programmed Balance to Complete after FY 1997		0		
Unprogrammed Balance to Complete after FY 1997		0		

PHYSICAL DATA

Entrance Channel:
Length - 850 feet
Width - 120 feet
Depth - 12 feet

Turning Basin:
Area - 1.2 acres
Depth - 12 feet

Breakwater (Existing):
Length - 850 feet (West)

Breakwater Extension (New):
Length - 367 feet (West)

Revetted Mole:
Length - 740 feet (East)

JUSTIFICATION: The Kohala resort area immediately to the south of Kawaihae Harbor has grown from 1,500 hotel units to 3,300 hotel units in the last five years. Another 350 rooms are under construction. There is a present demand for 90 new commercial charter mooring spaces at Kawaihae. The State is in the process of expanding their deep draft harbor facilities to accommodate rapidly growing cargo inshipments generated by the growing West Hawaii community. The average annual benefits for commercial navigation, wave damage reduction and recreation are $1,575,000.

FISCAL YEAR 1997: The requested amount of $2,238,000 will be applied as follows:

Complete Breakwater and Revetted Mole Construction	$1,870,000
Engineering and Design	66,000
Construction Management	302,000
Total	$2,238,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Pay 10 percent of the costs allocated to general navigation during construction.	$ 689,000	
Reimburse an additional 10 percent of the costs of general navigation features allocated to commercial navigation within a period of 30 years following completion of construction, less the cost for lands, easements, and rights-of-way.	689,000	
Total Non-Federal Costs	$1,378,000	$0

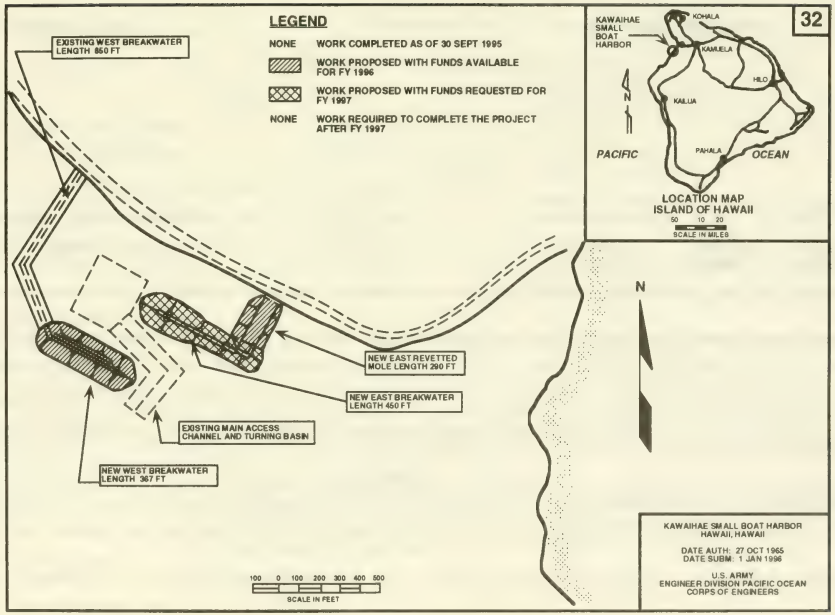
The non-Federal sponsor has agreed to make all required payments concurrently with project construction and reimburse its share of construction costs within a period of 30 years following completion of construction.

STATUS OF LOCAL COOPERATION: The non-Federal sponsor is the State of Hawaii. In a letter, dated December 15, 1994, the State of Hawaii Department of Transportation reaffirmed support to cost share the project first cost, currently estimated at $6,367,000. The local share was funded by Legislative appropriation in FY 1992. The project cooperation agreement was executed in August 1995.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal (Corps of Engineers) cost estimate of $6,178,000 is a decrease of $1,671,000 from the last estimate ($7,849,000) presented to Congress (FY 1996). This change reflects the actual construction cost based on award and estimate for pending change to anchoring method.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The submission of EIS and EIS supplement to EPA was accomplished in June 1978. An EA/FONSI to update the EIS was completed in January 1995.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1989 and funds to initiate construction were appropriated in FY 1991. A reevaluation report addressing modifications to the authorized project was submitted for Washington level review in June 1994 and approved in May 1995. The construction contract was awarded in November 1995. Fish and Wildlife Mitigation cost for this project is $42,000.



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APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Maalaea Harbor, Maui, Hawaii (Continuing)

LOCATION: Maalaea Bay is situated on the southwest coast of Maui, approximately 7 miles south of Wailuku, the county seat of Maui, State of Hawaii.

DESCRIPTION: The authorized plan consists of improvements to an existing State-owned facility initially constructed by the State of Hawaii in 1952. The plan includes a 620-foot long extension of the south breakwater, a new 610-foot long, 150- to 180-foot wide, 12- to 15-foot deep entrance channel, a 1.7-acre and 12-foot deep turning basin and a 720-foot long, 80-foot wide and an 8-foot deep access channel. The improvements will allow an increase in berthing capacity from the existing 93 mooring spaces to a maximum capacity of 220 vessels.

AUTHORIZATION: Section 101 of the Rivers and Harbors Act of 1968 (Public Law 90-483) in accordance with provisions contained in House Document No. 353, 90th Congress, 2nd Session, dated July 8, 1968.

REMAINING BENEFIT-REMAINING COST RATIO: 5.4 to 1 at 3-1/4 percent.

TOTAL BENEFIT-COST RATIO: 5.4 to 1 at 3-1/4 percent.

INITIAL BENEFIT-COST RATIO: 5.6 to 1 at 3-1/4 percent (FY 1990). The benefit-cost ratio is based on the project functioning independently.

BASIS OF BENEFIT-COST RATIO: Benefits are based on a reevaluation completed in May 1995 at October 1995 price levels.

SUMMARIZED FINANCIAL DATA		STATUS (1 JAN 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Appropriation Requirement (CofE)	$8,810,000	Entire Project	0	Being Determined
Estimated Total Appropriation Requirement	$8,810,000			
Future Non-Federal Reimbursement	970,000			
Estimated Federal Cost (Ultimate)	$7,840,000			

SUMMARIZED FINANCIAL DATA (Continued)

Estimated Non-Federal Cost		$1,960,000		
Cash Contributions	$980,000			
Other Costs	10,000			
Reimbursements	970,000			
Total Estimated Project Cost		$9,800,000		
			ACCUM PCT OF EST FED COST	
Allocations to 30 September 1995		$1,850,000		
Conference Allowance for FY 1996		0		
Allocation for FY 1996		-105,000		
Allocations through FY 1996		1,745,000	20	
Allocation Requested for FY 1997		517,000	26	
Programmed Balance to Complete after FY 1997		6,548,000		
Unprogrammed Balance to Complete after FY 1997		0		

PHYSICAL DATA

Entrance Channel:
- Length - 610 feet
- Width - 150 to 180 feet
- Depth - 12 to 15 feet

Turning Basin:
- Area - 1.7 acres
- Depth - 12 feet

Breakwater Extension
- Length - 620 feet

Access Channel:
- Length - 720 feet
- Width - 80 feet
- Depth - 8 feet

JUSTIFICATION: Vessels moored in the existing State-owned facility at Maalaea Harbor have experienced surge and wave action from ocean swells generated by storms occurring in the southern hemisphere. The existing entrance channel is open to southerly swells and storm waves which directly enter the harbor basin causing damages to the vessels moored inside. The surge action renders much of the harbor basin unusable for safe mooring of vessels. The enlargement, deepening and the relocation of the entrance channel and extension of the existing south breakwater would reduce surge and wave action within the basin. These improvements would also increase the usable harbor basin area allowing Maui District boaters currently awaiting slips at Maalaea to safely wet-store their vessels at the harbor and providing safer navigation conditions for vessels using the facility. The harbor, when fully developed, would have a basin area of 13.5 acres with a maximum capacity of approximately 220 boats. Annual benefits for the project are summarized below:

Annual Benefits	Amount
Damage Reduction	$ 326,000
Commercial Fishing	96,000
New Commercial Navigation	1,985,000
Total	$2,407,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue Breakwater Construction	$238,000
Continue Harbor Dredging	59,000
Engineering and Design	190,000
Construction Management	30,000
Total	$517,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$ 10,000	
Pay 10 percent of the costs allocated to general navigation facilities during construction.	980,000	
Reimburse an additional 10 percent of the costs of general navigation features allocated to commercial navigation within a period of 30 years following completion of construction, as partially reduced by a credit allowed for the value of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas provided for commercial navigation.	970,000	
Total Non-Federal Costs	$1,960,000	$0

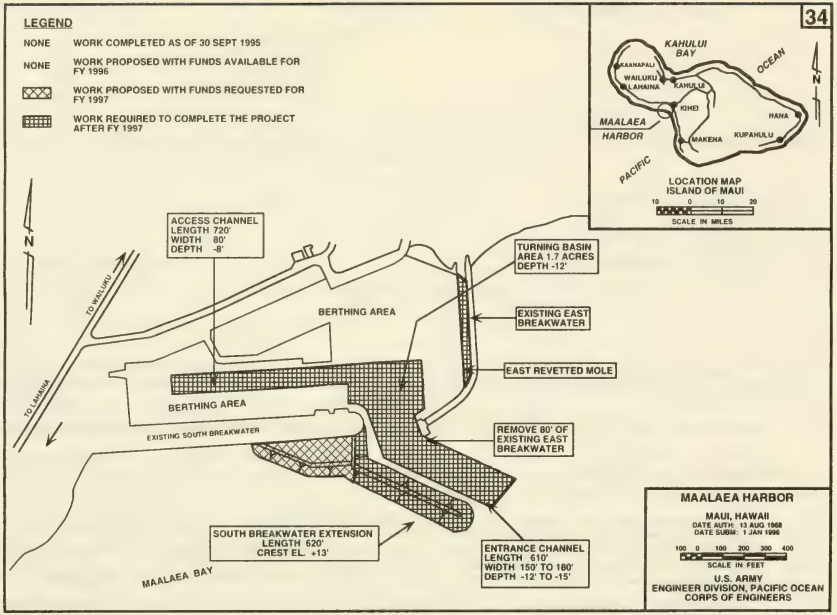
The non-Federal sponsor has agreed to make all required payments concurrently with project construction and reimburse its share of construction costs over a period of 30 years following completion of construction.

STATUS OF LOCAL COOPERATION: The non-Federal sponsor is the State of Hawaii. In June 1991, the State Department of Transportation reaffirmed their willingness to share the cost of project implementation, estimated at $9,800,000. The project cooperation agreement has been coordinated with the State of Hawaii and is scheduled to be executed in December 1996. The entire local share of the project first costs was appropriated by the 1989 State of Hawaii Legislature for the Harbors Division Capital Improvements Program (CIP) for the fiscal 1990-1991 biennium.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal (Corps of Engineers) cost estimate of $8,810,000 is a decrease of $629,000 from the last estimate ($9,439,000) presented to Congress (FY 1995). This change is due to a reduction in breakwater size and a reduction in dredge quantity.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS was filed with the EPA on April 28, 1980. An SEIS was completed in July 1994.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1979. Funds to initiate construction were appropriated in FY 1990. Construction contract award is scheduled for March 1997.


LEGEND
NONE WORK COMPLETED AS OF 30 SEPT 1995
NONE WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997
34
KAHULUI BAY
OCEAN
KAANAPALI
WAILUKU
LAHAINA
KAHULUI
KIHEI
HANA
MAALAEA HARBOR
MAKENA
KUPAHULU
PACIFIC
N
LOCATION MAP
ISLAND OF MAUI
10 0 10 20
SCALE IN MILES
N
TO WAILUKU
TO LAHAINA
ACCESS CHANNEL
LENGTH 720'
WIDTH 80'
DEPTH -8'
BERTHING AREA
BERTHING AREA
EXISTING SOUTH BREAKWATER
TURNING BASIN
AREA 1.7 ACRES
DEPTH -12'
EXISTING EAST BREAKWATER
EAST REVETTED MOLE
REMOVE 80' OF EXISTING EAST BREAKWATER
SOUTH BREAKWATER EXTENSION
LENGTH 620'
CREST EL. +13'
ENTRANCE CHANNEL
LENGTH 610'
WIDTH 150' TO 180'
DEPTH -12' TO -15'
MAALAEA BAY
MAALAEA HARBOR
MAUI, HAWAII
DATE AUTH: 13 AUG 1968
DATE SUBM: 1 JAN 1996
100 0 100 200 300 400
SCALE IN FEET
U.S. ARMY
ENGINEER DIVISION, PACIFIC OCEAN
CORPS OF ENGINEERS

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Iao Stream Flood Control, Maui, Hawaii (New Deficiency Correction)

LOCATION: The project is located in Wailuku, Maui County, Hawaii.

DESCRIPTION: Project consists of deficiency correction by structural modifications to correct erosion problems associated with the federally constructed single purpose Iao Stream Flood Control Project completed in May 1981.

AUTHORIZATION: Section 203 of the Flood Control Act of 1968 (PL 90-483).

REMAINING BENEFIT-REMAINING COST RATIO: 1.5 to 1 at 6-1/8 percent (Deficiency Correction Only).

TOTAL BENEFIT-COST RATIO: 1.5 to 1 at 6-1/8 percent (Deficiency Correction Only).

BASIS OF BENEFIT-COST RATIO: Benefits are based on a Modifications to Completed Project Report dated March 1995 at October 1995 price levels.

$UMMARIZED FINANCIAL DATA			STATUS (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Original Project			Original Project	100	May 1981
			Remedial Work	0	Being Determined
Actual Federal Cost		$12,285,000			
Actual Non-Federal Cost		274,262			
Other Costs	$274,262				
Total Original Project Cost		$12,559,262			
Remedial Work			PHYSICAL DATA		
Estimated Federal Cost		$12,112,000	Concrete Channel Lining		7,000 ft.
Estimated Non-Federal Cost		4,038,000			
Cash Contributions	$4,038,000				
Total Estimated Remedial Cost		$16,150,000			
Total Estimated Project Cost		$28,709,262			

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM PCT OF EST FED COST
Allocations to 30 September 1995	$12,285,000 1/	
Conference Allowance for FY 1996	0	
Allocation for FY 1996	0	
Allocations through FY 1996	12,285,000	50
Allocation Requested for FY 1997	345,000	52
Programmed Balance to Complete after FY 1997	11,767,000	
Unprogrammed Balance to Complete after FY 1997	0	

1/ Reflects $12,285,000 allocated to original project.

JUSTIFICATION: The Iao Stream Flood Control Project was designed to protect the town of Wailuku from destructive floods by channelizing the high velocity floodwaters into the Pacific Ocean. The project was designed for a standard project flood protection with a peak design discharge of 27,500 cfs. The completed project consists of a debris basin located 2.5 miles upstream from the stream mouth, channel improvements extending 3,500 feet downstream from the debris basin, levees along the right bank and floodplain management along the left bank for 6,950 feet of natural stream, and stream realignment with channel improvements for a reach of 1,730 feet which extends to the downstream limit of the project located near the shoreline. Storms occurring in March 1990 which approximated the 10-year flood event (6,000 cfs), caused extensive erosion to the toes of the levee system. Under existing damaged conditions, the occurrence of the design discharge will result in failure of the levee system and extensive flooding. To correct this problem and to eliminate levee failure, protective works are required to prevent damages to adjacent floodplain property and to preserve the integrity of the existing structures. The proposed measure consist of replacement of the leveed reaches of the project with a 7,000 ft. concrete channel. Annual benefits for flood damage reduction are $1,549,000.

FISCAL YEAR 1997: The requested amount of $345,000 will be used for Engineering and Design.

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected by Section 103 in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

	Payments During Construction and Reimbursements	Annual Operation Maintenance Repair, Rehabilitation and Replacement Costs
Requirements of Local Cooperation		
Provide lands, easements, rights-of-way, and disposal areas.	$ 0	
Pay 25 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent and bear all costs of operation, maintenance, and replacement of flood control facilities.	4,038,000	$10,000
Total Non-Federal Costs	$4,038,000	$10,000

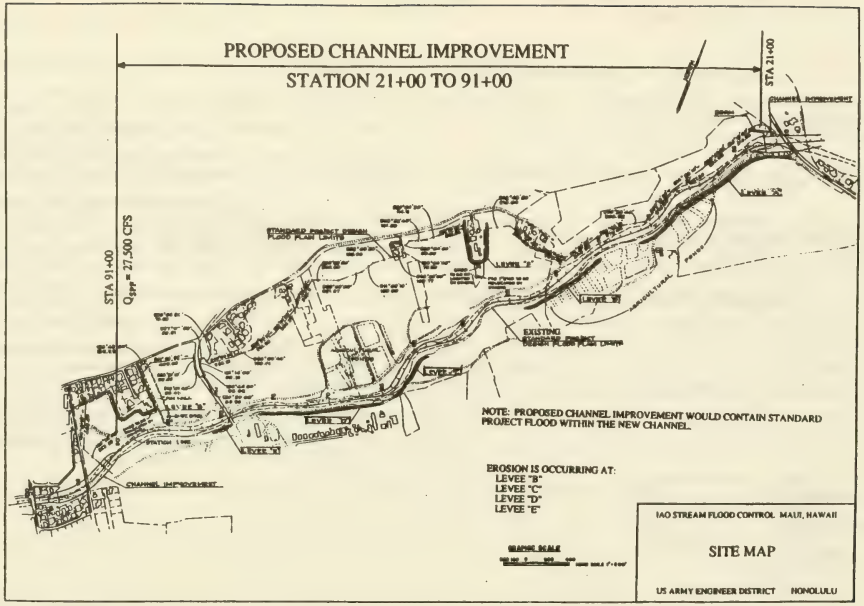
The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The existing operating project was completed in May 1981 and has been properly maintained by the County of Maui, the local sponsor. The lands required to implement the deficiency correction are within the existing project easements. The local sponsor supports the project and is willing and capable of furnishing the local cooperation requirements based on a letter dated 14 March 1995 from the Mayor of Maui County. The Project Cooperation Agreement is expected to be executed in FY 99.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate for deficiency correction is $12,112,000 and is the first estimate presented to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS for the original project was filed with the Council on Environmental Quality in September 1975. A new EIS will be required to address water quality, archaeological, and fish and wildlife impacts associated with channelizing the existing floodplain. The EIS is scheduled to be completed in FY99.

OTHER INFORMATION: A Modification to Completed Project Report was approved by HQUSACE on 8 December 1995.


PROPOSED CHANNEL IMPROVEMENT
STATION 21+00 TO 91+00
STA 91+00
Q_{SPF} = 27,500 CFS
STA 21+00
CHANNEL IMPROVEMENT
STANDARD PROJECT FLOOD FLOOD PLAIN LIMITS
EXISTING STANDARD PROJECT FLOOD LIMITS
LEVEE "A"
LEVEE "B"
LEVEE "C"
LEVEE "D"
LEVEE "E"
NOTE: PROPOSED CHANNEL IMPROVEMENT WOULD CONTAIN STANDARD PROJECT FLOOD WITHIN THE NEW CHANNEL.
EROSION IS OCCURRING AT:
LEVEE "B"
LEVEE "C"
LEVEE "D"
LEVEE "E"
GRAPHIC SCALE
IAO STREAM FLOOD CONTROL MAUI, HAWAII
SITE MAP
US ARMY ENGINEER DISTRICT HONOLULU

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Alenaio Stream, Hawaii, Hawaii (Continuing)

LOCATION: Alenaio Stream is situated in Hilo, the principal urban center in the South Hilo District and the county seat for the island of Hawaii, State of Hawaii.

DESCRIPTION: The recommended plan consists of 1,790 feet of concrete-lined channel; a 200-foot wedge-shaped concrete entrance transition; 830 feet of earth levee; 490 feet of concrete floodwall; 450 feet of concrete-rubble-masonry floodwall; four bridge replacements; removal of one public, one business, and six residential structures and access roads for channel construction and maintenance. An earth channel will connect the concrete channel to the existing Waiolama Canal.

AUTHORIZATION: Section 401(a) of the Water Resources Development Act of 1986 (Public Law 99-662) and Section 102(k) of the Water Resources Development Act of 1990 (Public Law 101-640).

REMAINING BENEFIT-REMAINING COST RATIO: 2.0 to 1 at 8 7/8 percent.

TOTAL BENEFIT-COST RATIO: 1.2 to 1 at 8 7/8 percent.

INITIAL BENEFIT-COST RATIO: 1.2 to 1 at 8 7/8 percent (FY 1991).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation report approved in July 1989 which was revalidated in May 1995 at October 1995 price levels.

SUMMARIZED FINANCIAL DATA			STATUS (1 JAN 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$10,670,000	Entire Project	39	Dec 1996
Estimated Non-Federal Cost		4,513,000			
Cash Contribution	$ 759,000				
Other Costs	3,754,000				
Total Estimated Project Cost		$15,183,000			

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM PCT OF EST FED COST
Allocations to 30 September 1995	$7,319,000	
Conference Allowance for FY 1996	0	
Allocation for FY 1996	2,851,000	
Allocations through FY 1996	10,170,000	95
Allocation Requested for FY 1997	500,000	100
Programmed Balance to Complete after FY 1997	0	
Unprogrammed Balance to Complete after FY 1997	0	

PHYSICAL DATA

Channel:

Unlined Trapezoidal
- Length - 340 feet
- Width - 60 feet
- Depth - 5-6 feet

Concrete/Transition
- Length - 1,987 feet
- Width - 30-51 feet
- Depth - 10.8 feet

Levee:
- Length - 830 feet
- Height - 3-9 feet

Floodwalls
- Length - 940 feet
- Height - 2-10 feet

JUSTIFICATION: Flood damages in the Alenaio Stream basin result from inadequate channel capacity and debris accumulation and blockage at bridge openings. Seven occurrences of significant flooding have occurred since 1920. The present value of the 223 residential and 286 commercial structures within the floodplain is $40,000,000. The average annual damages, with and without the project, are $40,000 and $1,475,000, respectively. The average annual flood damages are $1,436,000 and $39,000 to commercial and residential structures, respectively. The project would provide a 100-year level of protection. The maximum flood of record occurred on July 25, 1966 when four homes were demolished, 15 homes damaged, and over 100 business establishments in downtown Hilo were inundated with as much as two feet of water. Thirty-four people were evacuated and three were injured. One policeman narrowly escaped death when he was swept downstream during rescue operations. The damages sustained at that time have been estimated at $4,194,000. Damages begin with an event of approximately 10-year frequency. Duration of flooding is relatively brief with most damages caused by inundation of the contents of various business establishments. The project is located within a highly urbanized area and would have no adverse impacts on the natural environment.

FISCAL YEAR 1997: The total program amount requested will be applied as follows:

Complete Floodwall Construction	462,000
Construction Management	38,000
Total	$500,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way and dredged material disposal areas.	$1,113,000	
Modify or relocate utilities, roads, bridges, and other facilities, where necessary in the construction of the project.	2,641,000	
Bear all costs of operation, maintenance, and replacement of flood control facilities.		$30,000
Pay, in cash, 5 percent of the total project costs.	759,000	
Total Non-Federal Costs	$4,513,000	$30,000

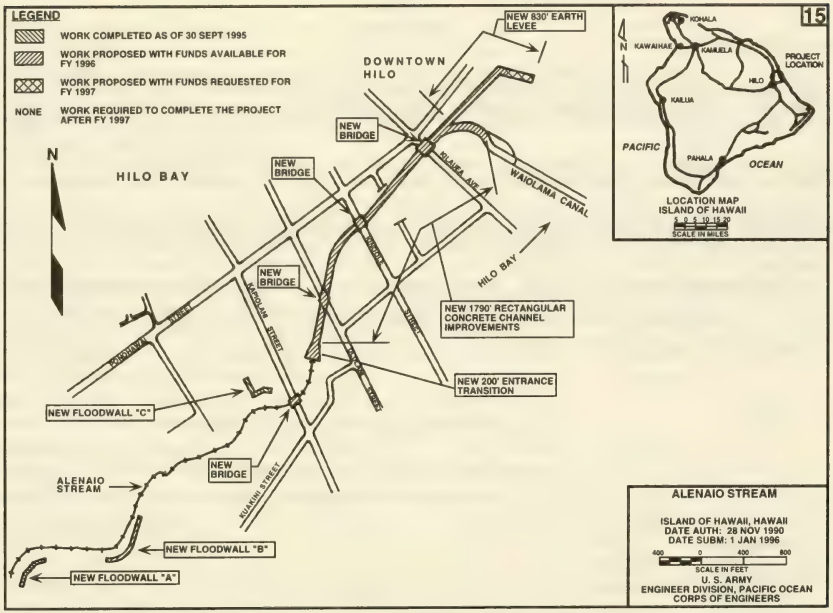
The non-Federal sponsor has agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The County of Hawaii is the non-Federal sponsor. The Local Cooperation Agreement was executed on April 27, 1992.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $10,670,000 is an increase of $21,000 from the last estimate ($10,649,000) presented to Congress (FY 1995). This change is due to price escalation on construction features.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Survey Report and Final Environmental Impact Statement was filed with EPA in July 1982. An Environmental Assessment was included with the General Design Memorandum, dated March 1990, to address changes to the project since authorization.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1988 and funds to initiate construction were appropriated in FY 1992. The construction contract was awarded in November 1994. The scheduled completion date of December 1996 for programmed work is an acceleration from the latest completion date of September 1997 presented to Congress. This change is due to project construction progressing ahead of schedule.


LEGEND
WORK COMPLETED AS OF 30 SEPT 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997
NONE
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997
N
HILO BAY
DOWNTOWN HILO
NEW 830' EARTH LEVEE
NEW BRIDGE
NEW BRIDGE
NEW BRIDGE
NEW BRIDGE
KILAUEA AVE
WAIOLAMA CANAL
HILO BAY
NEW 1790' RECTANGULAR CONCRETE CHANNEL IMPROVEMENTS
NEW 200' ENTRANCE TRANSITION
NEW FLOODWALL "C"
NEW FLOODWALL "B"
NEW FLOODWALL "A"
ALENAIO STREET
KOROWAI STREET
KUKAUNA STREET
ALENAIO STREET
ALENAIO STREET
ALENAIO STREET
ALENAIO STREET
15
N
KOHALA
KAWAIHAE
KAHUELA
PROJECT LOCATION
HILO
KAILUA
PACIFIC
PAHALA
OCEAN
LOCATION MAP
ISLAND OF HAWAII
SCALE IN MILES
ALENAIO STREAM
ISLAND OF HAWAII, HAWAII
DATE AUTH: 28 NOV 1990
DATE SUBM: 1 JAN 1996
SCALE IN FEET
U. S. ARMY
ENGINEER DIVISION, PACIFIC OCEAN
CORPS OF ENGINEERS

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. NAVIGATION

a. Channels and Harbors.

The program request of $150,000 provides for salaries, maintenance of display and slide projection rooms and materials essential in the operation of the Regional Visitors Center.

STATE / Project Name	OBLIGATIONS Estimated FY 1996 ($)	Estimated FY 1997 ($)	EXPLANATION OF MAJOR CHANGES
	Total (Operations)	Total (Operations)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10% +/-)
	(Maintenance)	(Maintenance)	2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
AMERICAN SAMOA			
Projects Periodically Maintained	105,000	0	
	(0)	(0)	1. None.
	(105,000)	(0)	2. None.
HAWAII			
Barbers Point Harbor	143,000	150,000	
	(143,000)	(54,000)	1. None
	(0)	(96,000)	2. None.
TOTAL - NAVIGATION	248,000	150,000	
	(143,000)	(54,000)	
	(105,000)	(96,000)	

PACIFIC OCEAN DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. FLOOD CONTROL

a. Reservoirs. None

b. Channel Improvements, Inspection and Miscellaneous.

The program request of $200,000 provides for salaries and the inspection of 13 flood control projects, 19 shore protection projects and 23 navigation breakwaters.

STATE Project Name	OBLIGATIONS Estimated FY 1996 ($)	Estimated FY 1997 ($)	EXPLANATION OF MAJOR CHANGES
	Total (Operations) (Maintenance)	Total (Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10% +/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
Iao Stream	555,000 (0) (555,000)	0 (0) (0)	1. None. 2. None.
Inspection of Completed Works	368,000 (368,000) (0)	200,000 (200,000) (0)	1. None. 2. None.
TOTAL - FLOOD CONTROL	923,000 (368,000) (555,000)	200,000 (200,000) (0)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

3. MULTIPLE PURPOSE POWER PROJECTS: None

4. PROTECTION OF NAVIGATION

The program request of $275,000 provides for salaries and project condition surveys of four harbors in FY97.

STATE Project Name	OBLIGATIONS Estimated FY 1996 ($)	Estimated FY 1997 ($)	EXPLANATION OF MAJOR CHANGES
	Total (Operations) (Maintenance)	Total (Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10% +/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
Project Condition Surveys	320,000 (320,000) (0)	275,000 (275,000) (0)	1. None. 2. None
TOTAL - PROTECTION OF NAVIGATION	320,000 (320,000) (0)	275,000 (275,000) (0)	
GRAND TOTAL - PACIFIC OCEAN DIVISION	1,491,000 (831,000) (660,000)	625,000 (529,000) (96,000)	

SOUTH ATLANTIC DIVISION

STATUS REPORT ON CIVIL WORKS ACTIVITIES

FISCAL YEAR 1997

BRIGADIER GENERAL RALPH V. LOCURCIO
DIVISION COMMANDER

BEFORE THE

SUBCOMMITTEE ON ENERGY AND WATER
DEVELOPMENT APPROPRIATIONS

OF THE

COMMITTEE ON APPROPRIATIONS

HOUSE OF REPRESENTATIVES

21 MARCH 1996

STATUS REPORT ON THE CIVIL WORKS ACTIVITIES IN THE SOUTH ATLANTIC DIVISION FISCAL YEAR 1997 BRIGADIER GENERAL RALPH V. LOCURCIO

INTRODUCTION

Mr. Chairman, and distinguished members of the Committee, I am pleased to present the status report on the Civil Works activities of the South Atlantic Division.

DIVISION AREA

The South Atlantic Division is responsible for Civil Works activities in all or part of seven southeastern states, Puerto Rico, and the U.S. Virgin Islands. The area covers about 260,000 square miles and includes about 13 percent of the national population. Implementation of the Civil Works program is conducted through District offices located at Mobile, Alabama, Jacksonville, Florida, Savannah, Georgia, Wilmington, North Carolina, and Charleston, South Carolina.

OVERALL BUDGET

The President's Fiscal Year 1997 Budget request includes $375,023,000 for Civil Works activities in the South Atlantic Division. This amount will allow for effective study and project execution.

GENERAL INVESTIGATIONS

The General Investigations Program allows for the planning, evaluation and design of solutions for water resource problems throughout the region.

FISCAL YEAR 1995

In Fiscal Year 1995, General Investigations expenditures totaled $13 million. This was 94 percent of the amount scheduled for expenditure. Reconnaissance reports were completed to determine the Federal interest in developing a barge fleeting area in Lowndes County, Mississippi; providing flood damage protection for Hancock, Harrison, and Jackson Counties, Mississippi; and improving conditions in the Pocotaligo River and Swamp in South Carolina. Feasibility studies were completed for improving navigation in Hillsboro Inlet and St. Lucie Inlet in Florida. Preconstruction Engineering and Design was completed for replacing the Federally owned Palm Valley Bridge near Jacksonville, Florida; improving the channels in San Juan Harbor in Puerto Rico; and deepening and widening the Wilmington Harbor, Northeast Cape Fear River channel in North Carolina.

FISCAL YEAR 1996

During Fiscal Year 1996, we will be completing additional important activities. These activities include: the reconnaissance report for providing shore protection at Daytona Beach Shores, Florida; the feasibility report for shoreline protection at Brevard County, Florida; the preconstruction engineering and design for deepening Panama City Harbor, Florida; and design for widening 6.2 miles of channel in Wilmington Harbor, North Carolina. The Congress provided funds in Fiscal Year 1996 to perform specific activities. These include: Initiating a reconnaissance study for navigation on Dog River, Alabama; beginning a reevaluation study for navigation improvements along the Atlantic Intracoastal Waterway in Palm Beach County, and continuing the General Reevaluation Report on flood damage protection for St. Johns County, in Florida.

FISCAL YEAR 1997

The Fiscal Year 1997 General Investigations request of $8,243,000 will allow for the initiation of new activities as well as continue with work underway.

SURVEYS

NEW

A new study will address flooding problems in the Flint River Basin in Georgia.

CONTINUING

Navigation feasibility studies will continue; to locate a new lock in the Alabama River below the Claiborne Lock and Dam in Alabama; to enlarge the channels in Jacksonville Harbor to accommodate larger vessels, and to stabilize Ponce De Leon Inlet, to reduce navigation problems, in Florida; to deepen the Brunswick Harbor channels, and expand the Savannah Harbor channel in Georgia, to accommodate the containerized cargo industry; and to improve the channel at Georgetown Harbor, South Carolina. Studies will continue to determine the appropriate disposition of the Island Creek Dam in the John H. Kerr Dam and Reservoir, Virginia and North Carolina project.

PRECONSTRUCTION ENGINEERING AND DESIGN

NEW

Preconstruction engineering and design will be initiated on the Rio Guanajibo, Puerto Rico flood damage protection project.

CONTINUING

Preconstruction engineering and design will continue on navigation projects; to improve the channels at Hillsboro Inlet, to provide the south jetty and impoundment basin at St. Lucie Inlet, and improve the Tampa Harbor, Big Bend channel, in Florida; to provide diversion structures in the Lower Savannah River in Georgia; to enlarge the Cape Fear, Northeast Cape Fear River, North Carolina channels for Panamax class vessels; for a deeper channel in Charleston Harbor, South Carolina; and to design the authorized project for Crown Bay Channel in the Virgin Islands. Preconstruction engineering and design will continue efforts on a dune and high berm for the Brunswick County Beaches beach erosion control project in North Carolina.

CONSTRUCTION

The construction program allows for the implementation of projects to correct water resource problems that burden the area.

FISCAL YEAR 1995

During Fiscal Year 1995, construction expenditures totaled $147 million. This was 93 percent of the amount scheduled for expenditure. Construction was completed for such projects as: deepening the Canaveral Harbor, Florida channel; data collection for the thin-layer demonstration project in Gulfport Harbor, Mississippi; and renourishing the shoreline at Duval County, Florida.

FISCAL YEAR 1996

In Fiscal Year 1996, construction will be completed on important projects to include: enlarging the channels in Fort Pierce Harbor, Florida; widening and deepening Pascagoula Harbor, Mississippi channels; and providing a 3,040 foot rubble mound revetment at historic Fort Fisher, North Carolina. The Congress provided funds specifically to initiate the plans and specifications to rehabilitate the levees at Elba and Geneva, Alabama.

FISCAL YEAR 1997

The President's Budget request for Fiscal Year 1997 includes $102,800,000 for our construction program. These funds will allow for the initiation of new projects and to continue projects already under construction.

NEW

ARECIBO RIVER, PUERTO RICO

New construction will provide channel improvements and flood walls along the Arecibo River in Puerto Rico to protect against flooding.

RIO GRANDE DE LOIZA, PUERTO RICO

Construction will be initiated to provide channel improvements, levees, and flood walls along the Rio Grande de Loiza in eastern Puerto Rico for flood protection.

WALTER F. GEORGE POWER PLANT, ALABAMA AND GEORGIA

New construction will allow for the rehabilitation of the Walter F. George Powerplant in Alabama and Georgia by replacing the turbines, the exciters, and rewinding the generators.

CONTINUING

BAYOU LA BATRE, ALABAMA

The requested funds will allow for completion of channel improvements at Bayou La Batre, Alabama to support the building and repair industry of larger vessels.

TENNESSEE TOMBIGBEE WATERWAY WILDLIFE MITIGATION, ALABAMA AND MISSISSIPPI

The requested funds will allow for the purchase of the last required lands for the Tennessee-Tombigbee Waterway Wildlife Mitigation project in Alabama and Mississippi and project completion.

MANATEE HARBOR, FLORIDA

Construction will continue on the Manatee Harbor, Florida project providing for a channel widener and enlargement of the turning basin area.

MIAMI HARBOR, FLORIDA

The local sponsor is continuing construction to provide a 44 foot channel in Miami Harbor, Florida. The requested funds will allow for construction monitoring and support.

AIWW - REPLACEMENT OF FEDERAL HIGHWAY BRIDGES, NORTH CAROLINA

Construction is continuing to replace the Federally owned highway bridges over the Atlantic Intracoastal Waterway in North Carolina.

CAROLINA BEACH AND VICINITY, NORTH CAROLINA

Initial nourishment of the Area South of Carolina Beach, North Carolina, is underway to provide a dune and beach berm to protect upland development from storm damage.

MYRTLE BEACH, SOUTH CAROLINA

Construction is being initiated this year to place sand on Myrtle Beach, South Carolina to protect the development from storm damage.

CENTRAL AND SOUTHERN FLORIDA, FLORIDA

The Central and Southern Florida project involves the southerly 18 counties of the state. Construction is continuing on channels, canals, levees, and flood walls in the Upper St. Johns River basin and the canal and pumping plants for South Dade County Canal. Design is underway for the West Palm Beach Canal. A comprehensive review of the entire project is also underway, along with other work specifically directed by the Congress.

PORTUGUES AND BUCANA RIVERS, PUERTO RICO

The Portugues and Bucana Rivers project provides flood protection to Ponce, Puerto Rico through the construction of two high level dams and channel improvements. The Cerrillos Dam is essentially complete. Construction is underway on the Portugues Debris Basins that will complete the channel work. Construction is also underway on the Portugues thin arch concrete dam.

RIO PUERTO NUEVO, PUERTO RICO

At Rio Puerto Nuevo, construction is underway for channel and canal improvements to provide flood protection for metropolitan San Juan, Puerto Rico.

RICHARD B. RUSSELL DAM AND LAKE, GEORGIA AND SOUTH CAROLINA

Testing is underway at the Richard B. Russell Dam and Lake, Georgia project to allow operation of the turbines in the pump-back mode with minimal harm to fish populations. Testing to date has provided positive results toward successful operations.

KISSIMMEE RIVER, FLORIDA

Construction design is still underway to modify the Kissimmee River, Florida flood control project by filling a portion of the canal to restore the natural meandering river flows to improve environmental conditions.

JIM WOODRUFF POWERHOUSE, FLORIDA

Construction is being initiated this year to rehabilitate the Jim Woodruff, Florida powerplant by replacing the turbines and rewinding the generators to reduce maintenance costs and improve power production efficiency.

HARTWELL LAKE POWERHOUSE, GEORGIA AND SOUTH CAROLINA

Construction is underway at the Hartwell Lake, Georgia and South Carolina project to rewind the generator units and refurbish the turbines to reduce maintenance and increase power production.

OPERATION AND MAINTENANCE

The Operation and Maintenance program provides for the operation and up-keep activities to insure that completed projects fulfill their authorized purposes.

FISCAL YEAR 1995

During Fiscal Year 1995, funds in the amount of $259,000,000 were expended, or 95 percent of the amount available for expenditure, to provide essential work on 51 harbor and channel projects, seven waterways containing locks and dams, four flood control reservoirs, two flood protection projects, and 13 multiple purpose projects as well as conducting project condition surveys and the removal of aquatic growth. A national review of the integrity of stoplogs was initiated due to a near catastrophic stoplog failure at Coffeeville Lock in Fiscal Year 1994.

FISCAL YEAR 1996

In Fiscal Year 1996, available funds in the amount of $271,000,000 are being used to provide essential work on 63 harbor and channel projects, seven waterways containing locks and dams, four flood control projects, two flood protection projects, and 13 multiple purpose projects including power as well as conducting project condition surveys and the removal of aquatic growth. The available amount includes funds added by the Congress for additional work in St. Augustine Harbor, Florida with material placed on the beach.

FISCAL YEAR 1997

The largest category of our Fiscal Year 1997 Budget request is for operation and maintenance. We are requesting $263,980,000 for this purpose.

23-577 96 – 40

NAVIGATION PROJECTS

Our request includes $165,702,000 for navigation, which allows us to maintain 29 major harbors and other small harbor and channel projects. Along with our harbors, our 3,800 miles of inland waterways with 33 locks and dams are vital to waterborne commerce, both domestic and international.

FLOOD CONTROL PROJECTS

Flood control projects account for $15,745,000 of our request. These projects have prevented flood damages valued in excess of $1 billion over the past 50 years.

MULTIPLE PURPOSE PROJECTS

The 13 Multiple purpose projects which we operate and maintain account for $77,579,000 of our operation and maintenance request. These projects provide a variety of benefits, including hydropower production. They generated 4.1 million megawatt hours of power last year resulting in sales revenues of $92.9 million.

PROTECTION OF NAVIGATION

Protecting navigation on our waterways is vital to the economic well-being of the nation. We are requesting $4,954,000 for this purpose which includes project condition surveys and the removal of aquatic growth.

EMERGENCY RESPONSE

The 1995 hurricane season turned out to be the second busiest season since the late 1800's. Of the 19 named tropical storms, 11 became hurricanes, 5 of which impacted the South Atlantic Division directly. The two most notable of these were Hurricane Marilyn and Hurricane Opal. Associated with Hurricane Marilyn alone, the Corps received over $143,000,000 worth of response and recovery missions from the Federal Emergency Management Agency (FEMA) and over $525,000 in Corps authority (PL-84-99). Hurricane Opal resulted in over $2,000,000 in missions to the Corps. Other hurricanes required the deployment of the Division emergency response capability in preparation for these threatening storms. Hurricanes were not the only problems faced in 1995. Tropical storms, such as "Jerry" caused significant rainfall over the State of Florida resulting in major flooding throughout the state, especially in southern Florida. An emergency work contract was awarded in July 1995 to remove shoals and clean out the impoundment basins for the St. Lucie Canal in Florida. All work was completed in November 1995 except for dredging the impoundment basins. That work is being accomplished this month, during better weather. An emergency dredging contract was awarded in October 1995 to remove shoals caused by Hurricane Opal in the Gulf Intracoastal Waterway. Shoals were impeding the movement of a number of barges loaded with coal required for power plant operations.

CONCLUSION

The South Atlantic Division continues, with your support, to have an important and active Civil Works program for the public in the southeastern United States. Located as we are, in the Olympic City of Atlanta, we believe that we are well positioned, with demonstrated ability, to continue the tradition of engineering excellence in the service of the citizens of this great region. Mr. Chairman, that concludes my status report for this year.

U. S. ARMY CORPS OF ENGINEERS
CIVIL WORKS PROGRAM

CONGRESSIONAL SUBMISSION
FISCAL YEAR 1997

SOUTH ATLANTIC DIVISION

Budgetary information will not be released outside the Department of the Army until 18 March 1996.

Justification of Estimates for Civil Function Activities
Department of the Army, Fiscal Year 1997
SOUTH ATLANTIC DIVISION

Table of Contents

	Page No.
Surveys	
Alabama River below Claiborne Lock & Dam, Alabama	3
Atlanta Watershed, Georgia	11
Brunswick Harbor, Georgia	8
Dare County Beaches, North Carolina	13
Dog River, Alabama	4
Flint River, Georgia	2
Georgetown Harbor, South Carolina	10
Intracoastal Waterway, Palm Beach County, Florida	5
Jacksonville Harbor, Florida	6
John H. Kerr Lake, Virginia and North Carolina	16
Lido Key, Sarasota County, Florida	12
Ponce De Leon Inlet, Florida	7
Santee, Cooper, Congaree River, South Carolina	14
Savannah Harbor Expansion, Georgia	9
Preconstruction Engineering and Design	
Brunswick County Beaches, North Carolina	32
Cape Fear - Northeast (Cape Fear) River, North Carolina	24
Charleston Harbor Deepening, South Carolina	27
Crown Bay Channel, Virgin Islands	28
Hillsboro Inlet, Florida	19
Intracoastal Waterway, Palm Beach County, Florida	20
Lower Savannah River Basin, Georgia	23
Nassau County, Florida	31
Rio Guanajibo, Puerto Rico	17
Rio Nigua at Salinas, Puerto Rico	29
San Juan Harbor, Puerto Rico	26
St. Lucie Inlet, Florida	21
Tampa Harbor, Big Bend Channel, Florida	22
Wilmington Harbor, NE Cape Fear River, North Carolina	25

Table of Contents (Continued)

	Page No.
Construction, General	
AIWW - Replacement of Federal Highway Bridges, North Carolina	70
Arecibo River, Puerto Rico	33
Bayou La Batre, Alabama	47
Black Warrior and Tombigbee Rivers, Vicinity of Jackson, Alabama	53
Carolina Beach and Vicinity, North Carolina	102
Central and Southern Florida, Florida	116
Dade County, Florida	77
Four Rivers Basin, Florida	126
Hartwell Lake Powerhouse, Georgia and South Carolina	172
Jim Woodruff Powerhouse, Florida and Georgia	168
Kissimmee River, Florida	163
Manatee Harbor, Florida	61
Martin County, Florida	82
Miami Harbor Channel, Florida	66
Myrtle Beach, South Carolina	110
Palm Beach County, Florida	88
Pinellas County, Florida	93
Portugues and Bucana, Puerto Rico	132
Richard B. Russell Dam and Lake, Georgia and South Carolina	156
Rio de la Plata, Puerto Rico	140
Rio Grande de Loiza, Puerto Rico	38
Rio Puerto Nuevo, Puerto Rico	145
Roanoke River Upper Basin, Headwaters Area, Virginia	150
Tennessee-Tombigbee Waterway Wildlife Mitigation, Alabama and Mississippi	57
Thurmond Lake Powerhouse, Georgia and South Carolina	176
Walter F. George Powerhouse, Georgia and Alabama	43
Operation and Maintenance	180

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

SUMMARY SOUTH ATLANTIC DIVISION

	FY 1996 Allocation 1/	FY 1997 Request	Increase or Decrease
General Investigations			
Surveys	$ 3,793,000	$ 3,489,000	$ -304,000
Preconstruction Engineering and Design	2,559,000	4,754,000	+2,195,000
Subtotal General Investigations	(6,352,000)	(8,243,000)	(1,891,000)
Construction, General			
Construction	88,278,000	87,300,000	-978,000
Major Rehabilitation	3,852,000	15,500,000	+11,648,000
Dam Safety Assurance	0	0	0
Subtotal Construction, General	(92,130,000)	(102,800,000)	(10,670,000)
Operation and Maintenance, General			
Project Operation	81,673,000	80,944,000	-729,000
Project Maintenance	198,633,000	183,036,000	-15,597,000
Subtotal Operation and Maintenance	(280,306,000)	(263,980,000)	(-16,326,000)
GRAND TOTAL, SOUTH ATLANTIC DIVISION	$ 378,788,000	$ 375,023,000	$ -3,765,000

1/ Energy and Water Development Appropriation Act, 1996, P.L. 104-46 (109 stat. 402).

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
1. SURVEYS - NEW					
a. Flood Damage Prevention Studies.					
Georgia					
Flint River Basin	400,000	0	0	260,000	140,000

The Apalachicola-Chattahoochee-Flint (ACF) Rivers basin drains an area of 19,600 square miles in western Georgia, eastern Alabama, and northwest Florida. The Flint River, located entirely in Georgia, merges with the Chattahoochee River to form the Apalachicola River. Due to recent flooding, there is an urgent need to reexamine the Flint River basin for flood damage prevention. Recent flooding in the Flint River basin during July 1994 caused 31 deaths in Georgia, destruction of several hundred thousands acres of crops, and overall damages of $500,000,000. Approximately 30,000 residents (one-third of the population) were evacuated from Albany, Georgia. Other damage centers include Newton, Bainbridge, Montezuma, and Americus, Georgia. The reconnaissance study will review the three proposed multipurpose projects located on the Flint River (Lower Auchumpkee Creek, Lazer Creek, and Spewrell Bluff) which were deauthorized by the Water Resources Act of 1986, and conduct engineering, economic, and environmental investigations to identify potential alternatives that would alleviate flood damages. The reconnaissance phase will also include development of a Project Study Plan and Feasibility Cost Sharing Agreement for feasibility phase investigations. The State of Georgia is the potential local sponsor and understands the requirements for study cost-sharing. Fiscal Year 1997 funds will be used to initiate the reconnaissance report. The schedule for completing the reconnaissance report is being determined.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
2. SURVEYS - CONTINUING					
a. Navigation Studies.					
Alabama					
Alabama River below Claiborne Lock and Dam	2,406,000	18,000	338,000	250,000	1,800,000

The Apalachicola-Chattahoochee-Flint (ACF) Rivers Basin drains an area of 19,600 square miles in Georgia, Alabama, and Florida and the Alabama-Coosa-Tallapoosa (ACT) Rivers Basin drains an area of 22,800 square miles in Georgia and Alabama. There is an existing authorized 9 foot by 200 foot navigation channel on the Alabama River from its junction with the Mobile River to Montgomery, Alabama, including three locks and dams. The ongoing Comprehensive Study of the ACF and ACT Rivers Basins is addressing a wide variety of water resources issues and seeks balanced use, development and protection of water resources in the two interstate basins. One concern being addressed in the Comprehensive Study is the reliability of the authorized 9-foot navigation project in the Alabama River below Claiborne Lock and Dam. Dredging and training works have been used extensively to increase the reliability of the channel, but these actions have had only limited success, due to recurring shoaling and streambed degradation following annual high flow periods. The Comprehensive Study will identify water resources problems in the basins and some potential solutions that will require Congressional authorization. Such solutions are subject to consensus of the three state partners in the ongoing Comprehensive Study and may include measures to improve the reliability of the channel in the lower Alabama River, such as additional locks and dams, changes in reservoir operations, or reallocation of storage to support additional project purposes. The Comprehensive Study, however, will not be developing information sufficiently detailed to support a recommendation for Congressional authorization. The primary products transported on this commercial inland navigation channel are forest products, sand and gravel, and petroleum products.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase. If the reconnaissance report is certified to be in accord with policy, funds requested for Fiscal Year 1997 will be used to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $2,000,000. Since the project is an inland waterway, the feasibility study will be 100 percent Federally funded.

The reconnaissance phase is scheduled to be completed in September 1996. The schedule for completing the feasibility study is being determined.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Dog River	700,000	0	148,000	100,000	452,000

The study area, located in Mobile County, Alabama, is a tidally influenced stream approximately 8 miles in length that discharges into the western side of Mobile Bay south of the City of Mobile. There is an existing authority for the Corps of Engineers to maintain the Dog River navigation project from Mobile Harbor Ship Channel to 2,600 feet west of the Alabama Highway 163 Bridge. The river has severe siltation west of that point and is not navigable during low tide. There is an urgent need to identify navigation and siltation problems and potential solutions for the portion of the river west of the existing channel. Numerous streams drain into Dog River with varying degrees of sedimentation transfer due to various land use patterns. The reconnaissance study will investigate potential alternatives that would improve navigation in this reach. The City of Mobile is the potential sponsor and understands the requirements for study cost sharing. The reconnaissance phase will also include development of a Project Study Plan and Feasibility Cost Sharing Agreement for feasibility phase investigations.

Fiscal Year 1996 funds are being used to initiate the reconnaissance phase, including engineering, economic, and environmental evaluations. Funds requested for FY 1997 will be used to complete reconnaissance phase investigations at full Federal expense, and if the reconnaissance report is certified to be in accord with policy, to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,000,000. A summary of study costs follows:

Total estimated study cost	$1,200,000
Reconnaissance Phase (Federal)	200,000
Feasibility Phase (Federal)	500,000
Feasibility Phase (Non-Federal)	500,000

The reconnaissance phase is scheduled to be completed in July 1997. The schedule for completing the feasibility study is being determined.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Florida					
Intracoastal Waterway, Palm Beach County	150,000	0	111,000	39,000	0

The Intracoastal Waterway (IWW) from Jacksonville to Miami, Florida in the area of Palm Beach County was originally authorized to a depth of 12 feet. The IWW in the Palm Beach County area was constructed to a depth of 10 feet which has been sufficient through the years until recently. A significant demand for larger vessels has come into existence. Those vessels draw more than the existing 10-foot depth. The most relevant and feasible measure for solving the navigation problem appears to be a deeper channel to provide access for deeper draft vessels. Access is needed for these larger vessels to provide docking, construction, maintenance, and repair. The Florida Inland Navigation District is the potential sponsor for the study. An economic update is being initiated in March 1996. The funds requested for Fiscal Year 1997 funds will be used to complete the economic update in March 1997.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Jacksonville Harbor	1,308,000	486,000	307,000	246,000	269,000

Jacksonville Harbor is at the mouth of the St. Johns River where it empties into the Atlantic Ocean in Duval County on the east coast of Florida, about 125 miles south of Savannah, Georgia, and 35 miles north of St. Augustine, Florida. Jacksonville, which includes all of Duval County, is the largest urban complex in northeast Florida and southeast Georgia. The existing 26.8 mile long navigation project contains the following features: an entrance channel with 42 and 40-foot depths, maintenance of jetties at the entrance channel, a 38-foot channel from the ocean entrance channel to mile 20 (Talleyrand Terminal) via Dame Point-Fulton Cut-off, with widths ranging between 400 and 1200 feet, a 30-foot channel from Commodore Point to the Florida East Coast Railway bridge at Jacksonville, and a 30-foot channel in Arlington Cut and in the old Dame Point-Fulton Channel. Jacksonville Harbor in 1988 and 1989 averaged about 15.4 million tons of cargo per year, 53 percent of which is bulk petroleum and coal. Port Authority representatives would like the channel deepened to accommodate larger vessels now being utilized by the world's commercial fleet. Various types of vessels carrying containers, coal, and fuel must light load instead of using full cargo carrying capacity. This study will address the feasibility of deepening the existing harbor channel to include the impact of material removal on the harbor system and shoreline process. Hydraulic modeling is included to evaluate widening for the larger ships. The Jacksonville Harbor Port Authority will be the non-Federal sponsor and is aware of study cost sharing requirements.

Fiscal Year 1996 funds are being used to continue the feasibility phase. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase. The preliminary estimated cost of the feasibility phase is $2,266,000, which is to be shared on a 50-50 percent basis by the Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,441,000
Reconnaissance Phase (Federal)	175,000
Feasibility Phase (Federal)	1,133,000
Feasibility Phase (Non-Federal)	1,133,000

The reconnaissance phase was completed in August 1994. The schedule for completing the feasibility study is being determined.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Ponce De Leon Inlet	941,000	584,000	233,000	112,000	12,000

Ponce de Leon Inlet is in Volusia County on the east coast of Florida about 65 miles south of St. Augustine Harbor and 57 miles north of Canaveral Harbor. The inlet is a natural waterway connecting the Atlantic Ocean with the Halifax and Indian Rivers. There is an existing navigation project in the inlet that provides channels 15 feet deep by 200 feet wide from the Atlantic Ocean to the inlet, 12 feet deep by 200 feet wide in the inlet, 12 feet deep by 100 feet wide in the Indian River section connecting with the Intracoastal Waterway to the south, and 7 feet deep by 100 feet wide in the Halifax River section connecting with the Intracoastal Waterway to the north. Jetties on each side of the inlet are also part of the project. Although navigation has improved with the construction of the jetties, there are still safety problems that are causing groundings and loss of life. Coast Guard records for the period 1981-1995 document 496 vessel groundings, 147 vessels that capsized, and 20 lives lost in the vicinity of the inlet. Frequent maintenance is also required with an average annual cost of approximately $1,000,000. Use of the inlet includes commercial fishing and charter boats which are adversely affected with changing inlet conditions. The study will focus on stabilizing the inlet to reduce navigation problems and maintenance costs. The Ponce de Leon Port Authority is the non-Federal sponsor. A feasibility cost sharing agreement was executed in February 1994.

Fiscal Year 1996 funds are being used to continue the feasibility phase. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase. The estimated cost of the feasibility phase is $1,532,000, which is being cost shared on a 50-50 percent basis by the Federal and non-Federal sponsor. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,707,000
Reconnaissance Phase (Federal)	175,000
Feasibility Phase (Federal)	766,000
Feasibility Phase (Non-Federal)	766,000

The reconnaissance phase was completed in February 1994. The schedule for completing the feasibility phase is being determined.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Georgia					
Brunswick Harbor	2,477,000	1,884,000	222,000	250,000	121,000

The Brunswick Harbor Study was resumed in FY 1995 as a cost-shared feasibility study. Commerce through the port continues to be limited by insufficient channel depth. The Feasibility Report will likely recommend deepening the existing Federal navigation project. At the time of study suspension, a 2-foot deepening project was identified as the NED Plan costing $45,000,000. A 4-foot deepening plan estimated to cost $78,000,000 was identified as the Locally Preferred Plan. The Georgia Ports Authority (GPA) requested that the study be suspended until economic evaluations could support 4-foot deepening. Believing there has been sufficient economic change to support the Locally Preferred Plan, GPA requested a resumption of the study. Channel deepening would occur on the inner harbor channels to terminal facilities on the East River and Colonels Island. Remaining feasibility activities include ship simulation studies, updating the benefit and cost evaluations, and completing the Environmental Impact Statement. The project sponsor is the Georgia Ports Authority. The Feasibility Cost Sharing Agreement was signed 24 February 1995.

Fiscal Year 1996 funds are being used to continue the feasibility phase. Prior to Fiscal Year 1995 the feasibility study was funded at total Federal expense. Funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The total estimated cost of the feasibility phase is $3,052,000. The estimated cost to resume and complete the study is $1,450,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$ 3,202,000
Reconnaissance Phase (Federal)	150,000
Feasibility Phase (Federal)	2,327,000
Feasibility Phase (Non-Federal)	725,000

The schedule for completing the feasibility study is being determined.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Savannah Harbor Expansion	2,425,000	50,000	246,000	400,000	1,729,000

The Savannah Harbor area includes the lower 21.3 miles of the Savannah River which is the principal boundary between the states of Georgia and South Carolina. The City of Savannah is located about 18 miles from the river mouth. The Port of Savannah has and will continue to play an important role in the economic development of Georgia and South Carolina. Recent improvements to the harbor included construction of a new bridge in 1991, which increased vertical clearance to 185 feet, widening the channel from 400 to 500 feet in 1992 and deepening the harbor in 1994 to 42 feet, allowing greater access to 95% of all ships involved in international trade. Recent data compiled for the justification of the Harbor Deepening project and the South Atlantic Container Cargo Traffic Study indicate that 24 different major facilities or facility complexes serve the harbor. Results of the Container Study indicate the current 1.9 million tonnage equivalent units (TEU) through South Atlantic Ports is projected to exceed 13 million TEUs by the year 2050; this volume is greater than today's total US containerized trade. With this growth, the capacity of the Port of Savannah container cargo facilities is expected to be exceeded by 2005. The reconnaissance study will review the results of the Harbor Deepening Study, the Container Study, the Long Term Management Strategy Study and will coordinate with the states and local interest groups to determine the Federal interest and need for further studies to expand the harbor for continued economic growth. The Georgia Ports Authority is the potential study sponsor and has indicated intent to cost share the feasibility study.

Fiscal Year 1996 funds are being used to fund the reconnaissance phase at full Federal expense. If the reconnaissance report is certified to be in accord with policy, the funds requested for Fiscal Year 1997 will be used to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $4,000,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$ 4,425,000
Reconnaissance Phase (Federal)	425,000
Feasibility Phase (Federal)	2,000,000
Feasibility Phase (Non-Federal)	2,000,000

The reconnaissance phase is scheduled for completion in March 1997. The schedule for completing the feasibility study is being determined.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
South Carolina					
Georgetown Harbor	1,397,000	0	205,000	207,000	985,000

Georgetown Harbor is located on the Atlantic coast approximately 60 miles northeast of Charleston, South Carolina. The existing project provides for a channel 27 feet deep from the Atlantic Ocean through Winyah Bay and includes a turning basin in Sampit River. Since 1984 approximately $8.5 million has been spent on structures and improvements by the South Carolina State Ports Authority (SCSPA) and private interests. As a result of these efforts, commerce has increased from 249,000 tons in 1984 to 1.3 million tons in 1995. In 1995, a new shipping line began importing lumber from Brazil. It is estimated they will import 40,000 tons of cargo annually. The majority of the vessels currently using Georgetown Harbor cannot navigate the channel fully loaded. The major problems encountered at Georgetown are: 1) lack of year-round project depth caused by rapid shoaling, 2) turning basins, bends, and channel dimensions are insufficient for existing traffic, and 3) lack of adequate disposal sites. This study will investigate the feasibility of modifying the existing project; develop a maintenance plan which will provide authorized depth year round, with or without project modification, and a disposal plan which is economically and environmentally acceptable. The South Carolina State Ports Authority is the potential non-Federal partner and they are aware of the study cost sharing requirements. The Feasibility Cost Share Agreement is scheduled to be executed in June 1997.

Fiscal Year 1996 funds are being used to initiate the reconnaissance study. The funds requested for Fiscal Year 1997 will be used to complete the reconnaissance phase at full Federal expense. If the reconnaissance report is certified to be in accord with policy, Fiscal Year 1997 funds will also be used to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $2,000,000, which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$2,397,000
Reconnaissance Phase (Federal)	397,000
Feasibility Phase (Federal)	1,000,000
Feasibility Phase (Non-Federal)	1,000,000

The reconnaissance phase is scheduled for completion in June 1997. The schedule for completing the feasibility study is being determined.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
b. Flood Damage Prevention Studies.					
Georgia					
Atlanta Watershed	600,000	0	275,000	325,000	0

The study will be conducted for the purpose of developing a comprehensive watershed master plan for parts of metropolitan Atlanta. The development of the master plan will be based on a thorough assessment of flooding problems and flood damage reduction needs, water quality problems and needs, and inter-related storm drainage and sanitary sewer environmental infrastructure problems and needs. DeKalb County and Fulton County, Georgia and the City of Atlanta have passed floodplain regulations, resolutions, or ordinances to restrict development in flood-prone areas; however, the rapid urbanization of the Atlanta metropolitan area resulted in the development of many areas subject to periodic flooding prior to passage of these regulations, resolutions, or ordinances. The scarcity of land and attractiveness of stream side areas both contributed to encroachment on the floodplain. Local drainage patterns have also been greatly altered by the urbanization of the metropolitan area. At many locations, extensive storm drain systems have been used to substantially alter natural drainage patterns in order to get rid of water as quickly as possible. Much of the water entering the streams comes from runoff from developed areas, plant discharges, pipe leaks, and numerous other sources. Thus, the water tends to be of poor quality often loaded with oils, grease, and other pollutants. Additional pollution is caused by treated and untreated wastes from industrial sources, by wastes picked up and carried into the streams by urban street runoff during rains, and by leakage and overflow from combined storm and sanitary sewers during rains. Major flood events occurred in April 1963, March 1975, March 1976, and March 1990. There are over 600 residential structures in the 100-year flood plain. The study will identify potential alternatives that would alleviate flood damage, water quality, and inter-related storm drainage and sanitary sewer infrastructure problems, and enhance environmental quality. Potential sponsors include the State of Georgia, Fulton County, Dekalb County, and the City of Atlanta. Funds requested for Fiscal Year 1997 will be used to complete reconnaissance phase studies, including engineering, economic, and environmental investigations. The reconnaissance phase is scheduled to be completed in July 1997.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
c. Shoreline Protection Studies.					
Florida					
Lido Key, Sarasota County	100,000	0	74,000	26,000	0

Lido Key is on the west coast of Florida near the central portion of the Florida peninsula and about 45 miles south-southwest of Tampa. The island is about 2.5 miles in length and lies entirely within the corporate limits of the city of Sarasota. New Pass separates Lido Key from Longboat Key to the north and Big Sarasota Pass separates Lido Key from Siesta Key to the south. Lido Key was a beach erosion control project authorized by the 1970 River and Harbor Act. The project provided for initial restoration and periodic nourishment for 1.2 miles of shoreline. The city of Sarasota completed the northern half of the project in 1970 with no Federal participation. The project was never completed and was deauthorized on 1 January 1990 in accordance with the provisions of Section 1001(b) (1) of the 1986 Water Resources Development Act. Maintenance dredged material from the Federal navigation project at New Pass is periodically placed on Lido Key. Approximately 1.4 million cubic yards of material has been placed on the beaches of Lido Key since 1974. The purpose of the study is to provide for hurricane and storm damage protection. The potential study sponsor is the city of Sarasota. Fiscal Year 1996 funds are being used to initiate the reconnaissance report. The funds requested for Fiscal Year 1997 will be used to complete the reconnaissance report in January 1997.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
North Carolina					
Dare County Beaches	2,097,000	954,000	215,000	400,000	528,000

Dare County is located on the northern coast of North Carolina about 40 miles south of the North Carolina-Virginia state line. The study area covers approximately 85 miles of oceanfront beach in Dare County, which includes approximately 53 miles of oceanfront within the Cape Hatteras National Seashore south of Nags Head. In addition to damage caused by hurricanes, winter storms regularly damage or destroy structures near the shoreline. Two storms which occurred in late October and early November 1991 caused $4,125,000 in structural damages to nearly 500 buildings. The results of the reconnaissance study support additional Federal involvement in a feasibility phase study of approximately 20 miles of oceanfront in northern Dare County. The feasibility phase will determine the most effective method of providing improvements. The plan of protection that will be considered is a beachfill consisting of a storm berm and where necessary, repairs to the dune line where it has been damaged by storms. The feasibility cost-sharing agreement was signed in May 1994 with the study sponsor, Dare County.

Fiscal Year 1996 funds are being used to continue the feasibility phase including engineering, economic and environmental studies. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase. The estimated cost of the feasibility phase is $3,222,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$3,708,000
Reconnaissance Phase (Federal)	486,000
Feasibility Phase (Federal)	1,611,000
Feasibility Phase (Non-Federal)	1,611,000

The reconnaissance phase was completed in May 1994. The schedule for completing the feasibility study is being determined.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
d. Comprehensive Basin Studies.					
South Carolina					
Santee, Cooper, and Congaree Rivers	1,828,000	0	204,000	254,000	1,370,000

The Santee-Cooper River Basin includes 16 counties in South Carolina and portions of western North Carolina. The total drainage area of the basin is over 15,000 square miles, which encompasses 33 percent of South Carolina's total land area and over 60 percent of the State's population. Significant growth in population and industry has increased flooding and environmental concerns. Flood stage has been exceeded 36 times in Columbia, West Columbia, and Cayce over the last 53 years. In the lower basin, there is a continuing concern for saltwater intrusion of the Bushy Park Reservoir, a primary source of industrial and domestic water supply. The reservoir is vulnerable to damage from saltwater during a storm surge or severe drought. Approximately 1750 acres of wetlands were degraded by the Cooper River Rediversion Project completed in 1985. A wide variety of other problems and opportunities need to be examined through a carefully coordinated comprehensive study. These include municipal and industrial water supply, recreation, and fish and wildlife enhancement. A particular opportunity exists for environmental restoration. Many Federal and State agencies have expressed strong interest in this study. The potential cost sharing sponsors are the South Carolina Department of Natural Resources and the South Carolina Public Service Authority. They are aware of the study cost sharing requirements. The Feasibility Cost Share Agreement is scheduled to be executed in December 1997.

Fiscal Year 1996 funds are being used to initiate the reconnaissance study. Fiscal Year 1997 funds will be used to complete the reconnaissance phase at full Federal expense, and if the reconnaissance report is certified to be in accord with policy, continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $2,648,000, which is to be cost shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$3,152,000
Reconnaissance Phase (Federal)	504,000
Feasibility Phase (Federal)	1,324,000
Feasibility Phase (Non-Federal)	1,324,000

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

Santee, Cooper, and Congaree Rivers (Continued)

The schedule for completing the reconnaissance phase is being determined. The schedule for completing the feasibility study is being determined.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
e. Project Review Studies.					
Virginia					
John H. Kerr Lake	2,400,000	0	185,000	620,000	1,595,000

John H. Kerr Lake is located in the Roanoke River basin and extends into north-central North Carolina and south-central Virginia. Kerr Lake, including the Island Creek dam and pumping station, was completed in 1952. A main thrust of the Section 216 study will be on the Island Creek dam and pumping station. The purpose of the Island Creek facility, constructed across an arm of Kerr Lake, was to protect a now abandoned tungsten mine from groundwater intrusion. Runoff from the Island Creek watershed is collected in Island Creek reservoir, and pumped through Island Creek dam into Kerr Lake. Resource management problems which must be addressed prior to abandonment of the facility and the resubmerging of approximately 2,120 acres which were dewatered by the Island Creek pumping station include: (1) Potentially hazardous substance sites in the Island Creek watershed; (2) Adverse social impacts, including acquisition of private property rights and displacement of residents; (3) Wetland and wildlife habitat losses due to inundation; and (4) Potential impacts on cultural resources. Prior to abandonment of the facility, environmental restoration and mitigation measures will be developed to offset these impacts. The US Fish and Wildlife Service supports this study effort, as does the State of North Carolina (Island Creek dam and pumping station are located in Virginia; however, the area which would be inundated by abandonment of this facility is primarily in North Carolina). The State of Virginia has no objection to the study and considers Island Creek to be primarily a North Carolina problem.

Fiscal Year 1996 funds will be used to initiate and complete the reconnaissance report and Initial Project Management Plan. Fiscal Year 1997 funds will be used to complete the reconnaissance phase and to initiate the feasibility study. The preliminary estimated cost of the feasibility phase is $2,000,000, to be funded at full Federal expense.

The reconnaissance phase is scheduled for completion in November 1996. The schedule for completing the feasibility study is being determined.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
3. PRECONSTRUCTION ENGINEERING AND DESIGN (PED) - NEW					
a. Flood Control					
Puerto Rico					
Rio Guanajibo	1,875,000	0	0	600,000	1,275,000

The Rio Guanajibo basin is located in the southwest corner of the Island of Puerto Rico. It contains approximately 133 square miles of coastal plain and mountainous terrain. Heavy rainfall combined with the very steep slopes of the upper basin can produce high discharges in a relative short time. There have been 12 major floods this century, the most severe of which occurred on September 16, 1975 during Hurricane Eloise. Even with early warning, 34 people died and 29 more were reported missing and presumed dead. Damages were in excess of $125,000,000 and over 10,000 people were forced from their homes. The recommended plan consists of the construction of 3.2 miles of levees, 0.6 mile of concrete floodwall, 1.7 miles of channel improvements, and the replacement of 2 bridges. The estimated project construction cost is $32,400,000. The average annual benefits amount to $6,450,400. The benefit-cost ratio is 2.6 to 1.0 based upon the latest economic analysis dated May 1994. The Feasibility Report was completed in May 1994.

In accordance with the cost sharing and financing concepts currently being proposed by the Dept. of the Army, and being discussed among the Administration and the Congress, local interests will be required to provide lands, easements, rights-of-way and borrow and excavated or dredged material disposal areas, modify or relocate utilities, roads, bridges, (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent of the costs allocated to flood control in cash during the period of construction; contribute an additional amount in cash or credits to bring the total non-federal share of costs allocated to structural flood control to 50 percent; and bear all costs of operation, repair, replacement, and maintenance of flood control facilities. Communities must agree to adopt additional flood plain management activities, beyond the current requirement to participate in the National Flood Insurance Program, in order to qualify for Federal participation in a structural flood damage reduction project under the terms as described above. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of stormwater runoff, and preservation of open space.

1269

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

Rio Guanajibo (Continued)

The estimated cost of preconstruction engineering and design is $2,500,000, which will be cost shared on a 75-25 percent basis; $1,875,000 Federal and $625,000 non-Federal. Fiscal Year 1997 funds will be used to initiate preconstruction, engineering and design. The schedule for completing preconstruction, engineering, and design is being determined.

1270

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
4. PRECONSTRUCTION ENGINEERING AND DESIGN (PED) - CONTINUING					
a. Navigation.					
Florida					
Hillsboro Inlet	600,000	0	222,000	200,000	178,000

Hillsboro Inlet is on the east coast of Florida in Broward County about midway between Deerfield Beach and Pompano Beach. The authorized navigation project is for a channel 8 feet deep and 100 feet wide from the Intracoastal Waterway to a point 1,500 feet oceanward in Hillsboro Inlet where the depth increases to 10 feet and the width becomes 150 feet to deep water in the Atlantic Ocean. Two jetties are included at the ocean entrance on each side. A permanent 10 inch floating dredge is also part of the project to maintain the navigation channel and transfer sand across the inlet. Increases in boat traffic at the inlet and problems keeping the channel open are causing hazardous conditions for boaters in the area. About 50 commercial fishing and over 30 charter boats use the inlet which involves high risk of damage to vessels. Some commercial shrimp boats now travel to Port Everglades for ocean access rather than take the risk. The commercial catch handled through the inlet amounts to an estimated 7.2 million pounds of seafood a year. The Hillsboro Inlet Improvement and Maintenance District, the local sponsor, is concerned about the boater safety associated with conditions in the inlet and wants to improve the depths in the channel consistent with the authorized Federal project.

The project is authorized in Section 301 in the Rivers and Harbors Act of 1965. Average annual equivalent costs and benefits for the navigation work at that time were $58,000 and $85,000, respectively, for a benefit to cost of 1.5 to 1. The current estimated cost is about $2.1 million. Benefits will be derived from commercial navigation.

Fiscal Year 1996 funds are being used to complete a reevaluation study to determine what modifications are necessary to provide the authorized Federal project and if any additional modifications are justified and meets current day needs. If favorable and within the limits of the authorized project, preconstruction engineering and design will be continued. The funds requested for Fiscal Year 1997 will be used to continue preconstruction engineering and design. The schedule for completing PED is being determined.

1271

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Intracoastal Waterway, Palm Beach County	300,000	0	0	200,000	100,000

The Intracoastal Waterway (IWW) from Jacksonville to Miami, Florida in the area of Palm Beach County was originally authorized to a depth of 12 feet. The IWW in the Palm Beach County area was constructed to a depth of 10 feet which has been sufficient through the years until recently. A significant demand for larger vessels has come into existence. Those vessels draw more than the existing 10-foot depth. The General Reevaluation Report will focus on navigation solutions to the larger vessels. The most relevant and feasible measure for solving the navigation problem appears to be a deeper channel to provide access for deeper draft vessels. Access is needed for these larger vessels to provide docking, construction, maintenance, and repair. The Florida Inland Navigation District is the potential sponsor for the study.

Authorization of the Federal navigation project was in the River and Harbor Act of 1945. The authorization included navigation channel depth of 12 feet. The 10-foot project was constructed.

The economic update will be completed in March 1997, using study funds. The economic update will determine what modifications are necessary and justified on the existing project to provide the maximum authorized channel limits. Preconstruction engineering and design will commence upon completion of a favorable report. The estimated cost of preconstruction engineering and design is $400,000, which will be cost shared on a 75-25 percent basis; $300,000 Federal and $100,000 non-Federal. The funds requested for Fiscal Year 1997 will be used to initiate PED including core borings, surveys, cost estimates, and plans and specifications. The schedule for completing preconstruction engineering and design is being determined.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
St. Lucie Inlet	1,100,000	0	296,000	300,000	504,000

St. Lucie Inlet is located in Martin County on the east coast of Florida near the town of Stuart about midway between Cape Kennedy and Miami. The project was authorized by Section 201 of the 1974 River and Harbor Act (PL 89-298). The project provides for a channel 16 feet deep and 300 feet wide across the outer rock reef (Bar Cut), tapering to 10 feet deep and 150 feet wide through the inlet, and a channel 7 feet deep and 100 feet wide between the inlet and the Intracoastal Waterway. The authorized inlet improvements are multi-purpose in nature. The channel dredging benefits commercial boats by providing a deeper and wider channel. The sediment impoundment basin adjacent to the north jetty was constructed to reduce the maintenance from once a year to once every two years, a benefit to navigation. At the same time, the sediment trapped in the impoundment basin is bypassed to nourish the now eroding beaches for 3.5 mile distance south of the inlet. An extension of the north jetty in a southeasterly direction was constructed to improve navigation through the entrance channel. A detached breakwater immediately south of the entrance channel was constructed to improve channel protection and to protect the impoundment basin from waves approaching from the southeast. The south jetty was constructed to reduce sediment moving into the inlet from the south and improve navigation through the inlet during wave conditions approaching from the southeast. Construction of these authorized improvements occurred in October 1982. At the sponsor's request, construction of the south jetty was completed 1,000 feet short of its authorized length. In addition, the sand impoundment basin was not constructed to its authorized design capacity as a shallow subsurface rock formation (Anastasia formation) was encountered during construction. As a result, inlet navigability is hindered due to excessive shoaling within the channels and the formation of flood shoals in the interior waters. Inadequate performance of the projects' sediment bypassing system provides for excessive erosion of the beaches south of the inlet due to the inlet's high sediment trapping efficiency. The benefit cost ratio is 1.3 to 1. The Martin County Board of Commissioners, the non-Federal sponsor, passed a resolution on July 14, 1992, requesting Congress to authorize project funding to re-evaluate the project at St. Lucie Inlet.

The project was authorized for construction by Section 201 of the 1974 Rivers and Harbor Act. Completion of the project is authorized in House Document 294/93/1. Current Federal cost sharing is 83.5 percent and the non-Federal is 16.5 percent.

Fiscal Year 1996 funds are being used to initiate preconstruction engineering and design (PED). The funds requested for Fiscal Year 1997 will be used to continue preconstruction engineering and design for the project. The schedule for completing PED is being determined.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Tampa Harbor, Big Bend Channel	442,000	0	0	250,000	192,000

The project area is located in central Florida on the west coast. Tampa Harbor is among the nation's leading exporters of phosphate rock and chemicals. The main Federal ship channel in Tampa Harbor is 43 feet in depth. The Big Bend Channel is maintained by local interests to a depth of 34 feet, and connects the Tampa Harbor main ship channel to terminals at Big Bend, a distance of 2.2 miles. The channel supports bulk movements of coal and phosphate rock at the Big Bend terminals. The Tampa Port Authority is the non-Federal sponsor. The Feasibility Cost Sharing Agreement was executed August 1992 for the Big Bend Channel portion of the feasibility study. The feasibility study is scheduled for completion in August 1996. The report will recommend widening of the Big Bend Channel from 200 to 250 feet, deepening to 41 feet, and performing 2 feet of advanced maintenance. The remainder of the project is estimated at $9.2 million which is cost shared at $4.4 million Federal and $4.8 million non-Federal. The benefit cost ratio is 2.9 to 1.

The estimated cost of preconstruction engineering and design is $590,000, which will be cost shared on a 75-25 percent basis; $442,000 Federal and $148,000 non-Federal. The funds requested for Fiscal Year 1997 will be used to initiate PED for the Big Bend Channel. The schedule for completing PED is being determined.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Georgia					
Lower Savannah River	600,000	0	200,000	400,000	0

The Lower Savannah River Basin includes the Savannah River and surrounding wetlands from the start of the Savannah River Below Augusta Project which begins at the upper end of the Savannah Harbor (mile 21.31) to the head of navigation at Augusta just above the 13th Street bridge (mile 202.16), a distance of 180.85 miles. Numerous cuts have been made in the past to straighten the navigation channel. The river cut-offs created have begun to silt up, resulting in decreased flow through these areas with a degradation of the environment. An interim feasibility report is scheduled for completion in March 1996. The recommended project, estimated to cost $3,305,000 with an estimated Federal cost of $2,265,000 and an estimated non-Federal cost of $1,040,000 includes construction of a diversion structure to increase the flow into the mouth of Bear Creek and restoration of the mouth of Mill Creek. The increased flow will restore fish and wildlife habitat and improve water quality. The non-Federal Sponsor, the City of Savannah, Georgia is participating in the cost sharing of the feasibility phase and has indicated intent to cost share in construction.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor will be required to pay 25 percent of the construction costs.

Fiscal Year 1996 funds are being used to initiate preconstruction engineering and design. Fiscal Year [illegible] e used to complete preconstruction engineering and design in September 1997.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
North Carolina					
Cape Fear - Northeast (Cape Fear) River	1,000,000	0	0	1,000,000	0

Wilmington Harbor is located along the Cape Fear and Northeast Cape Fear Rivers on the southern coast of North Carolina in New Hanover and Brunswick Counties. The feasibility study is scheduled for completion in June 1996. The recommended project, estimated to cost $210,264,000 with an estimated Federal cost of $150,120,000 and an estimated non-Federal cost of $60,144,000, consist of deepening the existing navigation channel across the ocean bar from 40 to 44 feet; deepening the channel from the ocean bar to the Cape Fear River Memorial Bridge from 38 to 42 feet, a distance of approximately 27 miles; with no improvements up to 750 feet above the Hilton Railroad Bridge; then deepening the existing channel from 25 to 34 feet to the Arcadian Corporation, approximately 2 miles. The average annual benefits amount to $28,691,000, all for commercial navigation. The benefit to cost ratio is 1.5 to 1 based upon the latest economic analysis dated January 1996.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must provide lands, easements, rights-of-way, relocations, and dredged material disposal areas, presently estimated at $10,761,000; pay 25 percent of the cost of construction of the general navigation portion which has depth in excess of 20 feet but not in excess of 45 feet, presently estimated at $49,383,000; pay an additional 10 percent cash contribution based on the cost of general navigation features of the project over a period not to exceed 30 years, presently estimated at $9,200,000 with credits for lands, easements, rights-of-way, relocations, and dredged material disposal areas. The non-Federal sponsor is the State of North Carolina. They have expressed strong support for the project providing $2,500,000 in cash and in-kind services for the feasibility report.

The estimated cost of preconstruction engineering and design is $1,333,000, which will be cost shared on a 75-25 percent basis; $1,000,000 Federal and $333,000 non-Federal. Fiscal year 1997 funds will be used to initiate and complete preconstruction engineering and design in September 1997. Activities will include subsurface investigations and preparation of plans and specifications for wildlife mitigation.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Wilmington Harbor - Northeast Cape Fear River	1,980,000	1,878,000	2,000	100,000	0

Wilmington Harbor is located at Wilmington on the southern coast of North Carolina in New Hanover and Brunswick Counties. A General Design Memorandum and General Design Memorandum Supplement were completed in FY 1990 and FY 1994, respectively. The recommended project, estimated to cost $52,041,000 with an estimated Federal cost of $25,729,000 and an estimated non-Federal cost of $26,312,000, includes widening the 38 by 400-foot Fourth East Jetty Channel (about 1.5 miles long) to 500 feet; deepening the 32 by 400-foot channel between Castle Street and the NC 133 Bridge (about 1.7 miles) to 38-feet; deepening the 32 by 750 foot turning basin just above the mouth of the Northeast Cape Fear River on the west side to 38 feet; deepening the 32 by 300-foot channel between the NC 133 Bridge and the Hilton Railroad Bridge (about 0.5 miles) to 38 feet; deepening the 25 by 200-foot channel for a distance of 750 feet above the Hilton Railroad Bridge to 38 feet; mitigation to include acquiring, by fee title, 17.4 acres of upland and construction of an embayment to offset losses of wetlands and primary nursery area; and environmental enhancements to include acquiring, by easements or fee title, about 2,800 acres of wetlands, river bluffs, and ecotones and provision for a minimum number of specially designed corridors across the wetlands for industrial access to the river. The average annual benefits amount to $6,101,000 all for commercial navigation. The benefit-cost ratio is 1.5 to 1. The State of North Carolina is the project sponsor.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must provide lands, easements, rights of way, and dredged material disposal areas including necessary retaining dikes, presently estimated at $1,274,000; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project, presently estimated at $16,607,000; pay 25 percent of the costs allocated to fish and wildlife enhancement, presently estimated at $1,485,000; and 25 percent of the costs of operation, maintenance, and replacement of fish and wildlife facilities, presently estimated at $15,000 annually; and pay 25 percent of the cost allocated to deep draft navigation during construction, presently estimated at $6,946,000. The sponsor's requirement to reimburse the government for 10 percent of the cost of the general navigation feature is totally offset by credit for lands, easements, rights of way, and dredged material disposal areas including necessary retaining dikes.

Fiscal Year 1996 funds are being used to continue project coordination. Fiscal Year 1997 funds will be used to prepare a draft Project Cooperation Agreement and a Limited Reevaluation Report. Preconstruction engineering and design is scheduled for completion in March 1997.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Puerto Rico					
San Juan Harbor	3,373,000	3,223,000	0	150,000	0

San Juan Harbor is located within the San Juan metropolitan area along the north coast of Puerto Rico. It is the island's principal port, handling over 75 percent of the Commonwealth's non-petroleum waterborne commerce and is the only harbor on the north coast affording protection in all types of weather. Over 13 million tons of waterborne commerce now move through the harbor annually. Projecting current growth rates, annual cargo movements should exceed 15 million tons by the year 2000. Approximately $9.5 million in average annual benefits and improvements. The benefits will result from transportation of containerized cargo, and bulk grain. The plan recommended in the March 1994 General Reevaluation Report (GRR), represents a departure from the authorized project. As a result of ship simulation studies, widening the inner harbor channels of Army, Puerto Nuevo, and of 450 feet to 350 feet. Although the principle project depth will remain 40 feet at its intersection with Anegado Channel. This will represent an overall cost savings for the project of over $20 million. Construction of the Cruise Ship Basin, Anchorage Area "E", and San Antonio Channel are being deferred because they are not currently economically warranted. The total cost of the improvements recommended in the GRR is $61,500,000, of which the sponsor's share is $18,500,000. The average annual benefits amount to $9,528,000, all for commercial navigation. The benefit cost ratio is 3.0 to 1. The non-Federal sponsor is the Puerto Rico Ports Authority which is aware of the cost sharing requirements for the project implementation.

The project is authorized for construction by the Water Resources Development Act of 1986 with the following cost sharing requirements: local interests are required to provide lands, easements, and rights of way, and dredged material disposal areas, at no cost to the Government; pay 25 percent of the cost allocated to deep draft navigation up to 45 feet and 50 percent of the costs allocated to deep draft navigation in excess of 45 feet, during construction, presently estimated at $18,500,000; pay an additional 10 percent of the costs allocated to deep draft navigation within a period of 30 years following completion, presently estimated at $51,144,000.

The funds requested for Fiscal Year 1997 will be used to conduct a Limited Reevaluation Report and revise the plans and specifications for the Puerto Nuevo Channel. Preconstruction engineering and design is scheduled for completion in September 1997.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1997

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
South Carolina					
Charleston Harbor (Deepening/Widening)	225,000	0	0	225,000	0

Charleston Harbor is located about midway along South Carolina's Atlantic coastline. The harbor is the largest port in South Carolina and ranks first among container cargo ports on the Southeast and Gulf coasts, handling approximately 50 percent of all container tonnage among competing ports. The authorized project provides for a 40-foot project from the Atlantic Ocean to Goose Creek, a distance of 27.1 miles. The commerce in Charleston Harbor has increased from 6,850,000 tons in 1982 to an estimated 10,900,000 tons in 1994, of which 7,500,000 tons were containerized cargo. Containerized cargo increased to 8,300,000 tons in 1995. Charleston Harbor also has a significant amount of coal and petroleum products traffic. There has been an increase in the size of vessels using the terminal facilities in Charleston Harbor. Presently, container vessels using the harbor have design drafts up to 44 ft and the bulk carriers have design drafts up to 49 ft. Many of these vessels are required to light load and/or make use of tidal advantage because of the existing depth. Deepening of the channels would allow more efficient use of deeper draft vessels. A feasibility report, including economic analysis, will be completed in May 1996. The project sponsor is the South Carolina State Ports Authority. They have indicated their support for their portion of the project in a meeting held on 10 May 1995.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must provide lands, easements, rights of way, and dredged material disposal areas necessary for the project; pay 25 percent of the cost of construction of the general navigation portion which has a depth in excess of 20 feet but not in excess of 45 feet; and pay an additional 10 percent of the cost of the general navigation features of the project in cash over a period not to exceed 30 years, with credit for the value of the lands, easements, rights of way, relocations, and dredged material disposal areas.

The estimated cost of preconstruction engineering and design is $300,000, which will be cost shared on a 75-25 percent basis; $225,000 Federal and $75,000 non-Federal. Fiscal Year 1997 funds will be used to continue into preconstruction engineering and design. Preconstruction engineering and design is scheduled for completion in September 1997.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
Virgin Islands					
Crown Bay Channel	525,000	0	0	100,000	425,000

Crown Bay is on the south coast of St Thomas Island in the Virgin Islands about 75 miles east of San Juan, Puerto Rico. Port facilities on the shore of Crown Bay handle commercial cargo which is mainly containerized imports as well as some break-bulk movements. A feasibility report, completed in FY 1980, recommended a navigation project with an estimated cost of $8.29 million for construction of a channel and turning basin to a depth of 36 feet. The average annual equivalent benefits were $847,000 from passenger ship operational savings, passenger benefits and land enhancement. Since that report, the Virgin Islands Port Authority has changed their port operations and now has commercial cargo facilities in the area previously designated to handle passenger ships. Most passenger ships now use the West India Company dock in St Thomas Harbor on the east side of Crown Bay. The Port Authority did dredge in the authorized project area for material to develop the land where the cargo facilities now exists. The area developed by the Port was the original disposal area for the project. From 1986 through 1989 cargo tonnage has averaged about 460,000 tons a year for St Thomas Harbor in the Virgin Islands.

The Water Resources Development Act of 1986 authorized construction of the project. The estimated Federal cost was $2.92 million with a non-Federal cost of $5.37 million. The Virgin Islands Port Authority, the local sponsor, wants the Federal project for container ships using the Crown Bay port facilities. With the local dredging for fill material, the cost of the project would be less than originally estimated for construction. The Port Authority seeks no reimbursement for local dredging in the project area.

The estimated cost of preconstruction engineering and design is $700,000, which will be cost shared on a 75-25 percent basis; $525,000 Federal and $175,000 non-Federal. Fiscal Year 1997 funds would be used to initiate preconstruction engineering and design. The schedule for completing PED is being determined.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
b. Flood Control. Puerto Rico					
Rio Nigua at Salinas	900,000	0	0	329,000	571,000

The Rio Nigua basin is located in southern Puerto Rico. The Rio Nigua drainage area of about 52.6 square miles is bounded by abrupt mountains at its headwaters and has a coastal plain for the first six miles upstream from its mouth. The steep slopes and high impermeability of the terrain in the upper part of the basin produce fast runoff velocities of the surface waters and allow minimal infiltration. Approximately 400 acres of land are flooded by the 100-year flood in the Salinas area of which 250 acres are urbanized. Some 550 housing units, many commercial buildings, and a public hospital are within the floodable area. The most recent flood occurred in January 1992 resulting from the movement of a tropical depression over the island. This flood resulted in the loss of two lives, damages amounting to more than $2 million, and destruction of dozens of houses in the vicinity of Salinas. The feasibility report was completed in September 1995. The total project cost is $20,300,000 with an estimated Federal cost of $11,175,000 and an estimated non-Federal cost of $9,125,000 based on preliminary data obtained for the feasibility report. The benefit-cost ratio is 5.8 to 1. The Puerto Rico Department of Natural Resources will be the non-Federal sponsor.

In accordance with the cost sharing and financing concepts currently being proposed by the Dept. of the Army, and being discussed among the Administration and the Congress, local interests will be required to provide lands, easements, rights-of-way and borrow and excavated or dredged material disposal areas, modify or relocate utilities, roads, bridges, (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent of the costs allocated to flood control in cash during the period of construction; contribute an additional amount in cash or credits to bring the total non-federal share of costs allocated to structural flood control to 50 percent; and bear all costs of operation, repair, replacement, and maintenance of flood control facilities. Communities must agree to adopt additional flood plain management activities, beyond the current requirement to participate in the National Flood Insurance Program, in order to qualify for Federal participation in a structural flood damage reduction project under the terms as described above. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of stormwater runoff, and preservation of open space.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

Rio Nigua at Salinas (Continued)

The estimated cost of preconstruction engineering and design is $1,200,000, which will be cost shared on a 75-25 percent basis; $900,000 Federal and $300,000 non-Federal. The funds requested for Fiscal Year 1997 will be used to initiate preconstruction engineering and design. The schedule for completing PED is being determined.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
c. Beach Erosion Control.					
Florida					
Nassau County	1,757,000	1,068,000	214,000	400,000	75,000

Nassau County is the northernmost county on the east coast of Florida. Amelia Island forms the eastern border, stretching 13 miles south from the St. Marys River to the Nassau River. The county's land use is well defined between urbanization along the coast and agriculture in the interior. Medium density residential land use is common along the southern half of Amelia Island with lower density along the northern portion. The area is subject to hurricanes (1944 and 1964) and northeasters (1932, 1947, 1956, 1965, 1969, 1972, 1974, and 1981) which have caused significant damage to the beach, structures, and buildings. A feasibility report was completed in April 1984. At the request of the State of Florida, the shoreline erosion around Ft. Clinch Park is being evaluated as part of the Nassau County beach erosion control project. Alternatives are being evaluated in an effort to develop a justifiable solution to the erosion problems. The recommended plan, estimated to cost $16,500,000 with an estimated Federal cost of $13,000,000 and an estimated non-Federal cost of $3,500,000, provides for initial beach fill on 3.6 miles south of the south jetty and renourishment of 4.3 miles over the 50-year project economic life. The average annual benefits amount to $2,287,500. The benefit-cost ratio is 1.4 to 1. The non-Federal sponsor is the Nassau County Board of County Commissioners and has indicated their willingness to cost share project implementation.

The project is authorized for construction by the Water Resources Development Act of 1988 with the following cost sharing requirement: the Nassau County Board of County Commissioners will pay 20 percent of all costs associated with the nourishment of the project, presently estimated at $3,500,000.

The funds requested for Fiscal Year 1997 will be used to prepare a draft GRR and continue Preconstruction Engineering and Design. The schedule for completing PED is being determined.

Study/Project	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
North Carolina					
Brunswick County Beaches	3,511,000	2,221,000	371,000	500,000	419,000

The authorized project is located in Brunswick County, North Carolina. The authorized plan includes a continuous vegetated dune and high beach berm stabilized by periodic nourishment. The dune crown width is 25 feet at elevation 20 feet above mean sea level fronted by a storm berm having a width of 50 feet at elevation 15 feet above mean sea level. The beach segment is 28,000 feet in length. The authorized plan would reduce average annual damages along the project areas due to hurricane and storm action and beach erosion. The estimated project construction cost for the Ocean Isle portion is $48,300,000, with an estimated Federal cost of $31,400,000 and an estimated non-Federal cost of $16,900,000. The average annual benefits and benefit-cost ratio will be determined during the reevaluation, currently underway.

The project was authorized by the Flood Control Act of 1966. An economic reevaluation of the Long and Yaupon Beaches portion was approved in March 1990 which indicated that this portion was not economically justified. In November 1989, following Hurricane Hugo, the Town of Ocean Isle Beach requested reevaluation of the Ocean Isle Beach Portion. This effort was initiated in Fiscal Year 1990. The Towns of Long, Yaupon, Holden and Caswell Beaches have recently requested reevaluations of their portions of the project using storm damage and economic models that were not available when previous reevaluations were conducted. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor for Ocean Isle must provide all lands, easements and rights of way, including suitable borrow and spoil disposal areas, presently estimated at $9,700,000; pay 35 percent of the first costs and future nourishment allocated to hurricane and storm damage reduction which is partially offset by a credit for the value of lands, easements, and rights of way, including suitable borrow and spoil disposal areas presently estimated at $4,260,000 and $2,940,000 respectively; and bear all costs of operation, maintenance, and replacement of hurricane storm damage reduction facilities. The project sponsor, the Town of Ocean Isle Beach, indicated their support for their portion of the project in a letter dated November 1989.

Fiscal Year 1996 funds are being used to complete the General Reevaluation Report and initiate plans and specifications for the Ocean Isle portion and initiate reevaluations of the Long, Yaupon, Caswell and Holden Beach portions. Fiscal Year 1997 funds will be used to continue these reevaluations. The schedule for completing preconstruction engineering and design is being determined.

APPROPRIATION TITLE: Construction, General - Local Protection Project (Flood Control)

PROJECT: Arecibo River, Puerto Rico (New)

LOCATION: The city of Arecibo is located on the northern coast of Puerto Rico, approximately 40 miles west of San Juan. The Rio Arecibo Basin covers a 272 square mile area and has experienced numerous floods over recent years. The upstream towns of Utuado, Jayuya, and Adjuntas have also been subject to the frequent flooding. The largest flood of record occurred in 1899, with significant events in May and October 1985.

DESCRIPTION: The proposed plan includes channel improvements, a flood wall, and a levee along the Arecibo River; a levee along the Tanama River; and a plug, channel improvements, and a diversion channel along the Santiago river. The plan also includes a recreational trail on the Arecibo levee and along the Santiago channel; and, the planting of 7.2 acres of mangroves to mitigate for environmental losses. All work is programmed.

AUTHORIZATION: The project is budgeted for initiation of construction under proposed legislation.

REMAINING BENEFIT - REMAINING COST RATIO: 4.5 to 1 at 7 3/4 percent.

TOTAL BENEFIT - COST RATIO: 4.5 to 1 at 7 3/4 percent.

BASIS OF BENEFIT - COST RATIO: Benefits are from the economic analyses performed for the July 1993 Final Feasibility Report and Environmental Impact Statement, updated at the October 1995 price levels.

SUMMARIZED FINANCIAL DATA		ACCUM. PCT OF EST FED COST	STATUS (1 January 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$11,700,000			
Estimated Non-Federal Cost		11,700,000	Relocations - Roads	0	Being determined
Cash Contributions	2,149,000		Cemeteries/Utilities	0	Being determined
Other Costs	9,551,000		Levees and Floodwalls	0	Being determined
			Recreation	0	Being determined
Total Estimated Project Costs		23,400,000	Fish/Wildlife Facilities	0	Being determined
			Channels & Canals	0	Being determined
Allocations to 30 September 1995		$ 835,000	Breakwaters	0	Being determined
Conference Allowance for FY 1996		281,000			
Allocation for FY 1996		208,000 1/	Entire Project	0	Being determined

SUMMARIZED FINANCIAL DATA (Continued)

Allocations through FY 1996	1,043,000	8
Allocation Requested for FY 1997	350,000	11
Programmed Balance to Complete After FY 1997	10,307,000	
Unprogrammed Balance to Complete After FY 1997	0	

1/ Reflects $73,000 assigned as savings and slippage.

PHYSICAL DATA

Relocations - Bridges (Replacement)	5	
Levee	6,325	Meters
Floodwalls	315	Meters
Channels	6,300	Meters
Jetty	30.5	Meters
Wetland Mitigation	7.2	Acres
Recreation Trails	1,465	Meters

JUSTIFICATION: The Arecibo River basin covers a 272 square mile area and has experienced numerous floods over recent years. The upstream towns of Utuado, Jayuya, and Adjuntas have also been subject to the frequent flooding. The largest flood of record occurred in 1899, with significant events in May and October 1985. Over 500 acres of urbanized city area are impacted by floods including 800 residences, and over 100 businesses and public facilities. In addition to quantifiable damages, severe disruption of transportation and socio-economic activities resulted from these floods. Average annual benefits are as follows:

Item	Amount
Flood Damage Prevention	$ 6,573,000
Employment	78,000
Advance Bridge Replacement	228,000
Flood Insurance Cost	6,000
Recreation	279,000
Total Annual Benefits	$ 7,164,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Planning, engineering and design	$ 350,000
Total	$ 350,000

NON-FEDERAL COST: In accordance with the cost sharing legislation proposed by the Administration, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction, and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 4,645,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	4,906,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	212,000	
Pay 14.43 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 50 percent, and bear all cost of operation, maintenance, and replacement of flood control structures.	1,937,000	
Total non-Federal payments during construction.	$ 11,700,000	$ 76,000

The non-Federal sponsor will be required to make all payments concurrently with project construction.

NON-FEDERAL COST: (Continued)

Flood Plain Management Requirement

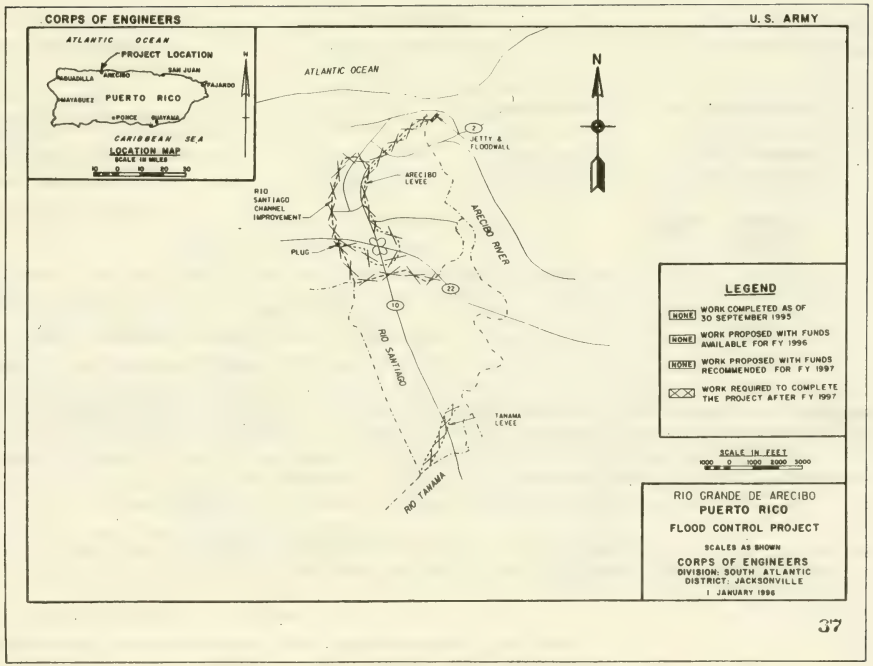
Communities must agree to adopt additional flood plain management activities beyond the requirement to participate in the National Flood Insurance Program to qualify for Federal participation in a structural flood damage reduction project. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of storm water runoff, and preservation of open space.

STATUS OF LOCAL COOPERATION: The Puerto Rico Department of Natural and Environmental Resources (DNER), will be the local sponsor.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $11,700,000 is the initial estimate presented to Congress for construction.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement for the project was filed on 10 December 1993.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1994.


CORPS OF ENGINEERS
U. S. ARMY
ATLANTIC OCEAN
PROJECT LOCATION
ARECIBO
SAN JUAN
GUAYNABO
FAJARDO
MAYAGUEZ
PUERTO RICO
PONCE
GUAYAMA
CARIBBEAN SEA
LOCATION MAP
SCALE IN MILES
10 0 10 20 30
N
ATLANTIC OCEAN
N
JETTY & FLOODWALL
ARECIBO LEVEE
RIO SANTIAGO CHANNEL IMPROVEMENT
PLUG
ARECIBO RIVER
RIO SANTIAGO
TANAMA LEVEE
RIO TANAMA
LEGEND
NONE WORK COMPLETED AS OF 30 SEPTEMBER 1995
NONE WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1996
NONE WORK PROPOSED WITH FUNDS RECOMMENDED FOR FY 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997
SCALE IN FEET
1000 0 1000 2000 3000
RIO GRANDE DE ARECIBO
PUERTO RICO
FLOOD CONTROL PROJECT
SCALES AS SHOWN
CORPS OF ENGINEERS
DIVISION: SOUTH ATLANTIC
DISTRICT: JACKSONVILLE
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection Projects (Flood Control)

PROJECT: Rio Grande de Loiza, Puerto Rico (New)

LOCATION: The Rio Grande de Loiza basin, located in the eastern central part of Puerto Rico, is the island's largest basin. It comprises the coastal plain of Carolina and the metropolitan area of Caguas in the interior valley. The study areas consists of 530 square kilometers draining into Lake Loiza. It includes the city of Caguas and the town of Gurabo where over 4,100 families and numerous public buildings and commercial facilities are affected by flooding.

DESCRIPTION: The recommended plan would provide channels, levees, and floodwalls for flood protection for the highly urbanized areas of the city of Caguas and the town of Gurabo. It consists of 1.8 kilometers of gabion-lined channel, 1.9 kilometers of concrete channels, and a debris basin for Rio Caguitas; 1.3 kilometers of concrete channels, 1.0 kilometers of earth channel, 0.6 kilometers of gabion-lined channel, 1.0 kilometer of levees, and a debris basin for Rio Bairoa; 2.8 kilometers of levees and floodwalls for Rio Grande de Loiza; and 0.7 kilometers of pilot channel and 1.8 kilometers of levees for Rio Gurabo. It also provides for recreation bikeway/pedestrian trails at Rio Grande de Loiza and Rio Gurabo levees. The average level of protection at Rio Caguitas and Rio Bairoa is estimated at 70 years and 220 years, respectively. The average level of protection for the remaining reaches is estimated at 100 years. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1992.

REMAINING BENEFIT - REMAINING COST RATIO: 1.9 to 1 at 7 3/4 percent.

TOTAL BENEFIT - COST RATIO: 1.9 to 1 at 7 3/4 percent.

BASIS OF BENEFIT - COST RATIO: Benefits are from the April 1995 Limited Reevaluation Report at March 1995 Price levels.

SUMMARIZED FINANCIAL DATA			ACCUM PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		89,050,000		Channels and Canals	0	Being determined
Estimated Non-Federal Cost		89,050,000		Levees and Floodwalls	0	Being determined
Cash Contributions	54,446,000			Floodway Control	0	Being determined
Other Costs	34,604,000			Recreation	0	Being determined
Total Estimated Project Cost		178,100,000				
				Entire Project	0	Being determined

SUMMARIZED FINANCIAL DATA (Continued):

Allocations to 30 September 1995	2,343,000		
Conference Allowance for FY 1996	453,000		
Allocation for FY 1996	336,000	1/	
Allocations through FY 1996	2,680,000		3
Allocation Requested for FY 1997	2,540,000		6
Programmed Balance to Complete After FY 1997	128,181,000		

1/ Reflects $117,000 assigned as savings and slippage.

PHYSICAL DATA

Relocations - Bridges (Replacement)	12.0
Levees & Floodwalls - Kilometers	5.6
Channels - Kilometers	7.3
Debris Basins	2.0

JUSTIFICATION: The Rio Grande de Loiza basin covers about 310 square miles. The 1990 population was about 600,000 which includes approximately 20 percent of the population of the San Juan Metropolitan area. Some 4,800 families residing in the basin are affected by the floods of the river and its tributaries, 4,300 of which live within the city of Caguas. Heavy rainfall combines with very steep slopes to produce high discharges in a relatively short period of time. Historical floods in the upper reaches of the Rio Grande de Loiza basin have significantly affected the urban areas of Caguas-Gurabo. The 1960, 1970, 1979, 1985, and 1987 floods caused extensive damage to the roads, utilities, farm lands, and livestock in the Caguas area. The 100-year flood puts 3 to 10 feet of water over the banks of the Loiza River, 2 to 11 feet in Caguitas, and 4 to 8 feet in Gurabo. Hundreds of families have received emergency housing and related emergency services during past floods. Expected annual flood damages for existing conditions is estimated at $18.6 million. Average annual benefits are as follows:

Item	Amount
Flood Damage Prevention	$ 21,247,000
Location	1,575,000
Redevelopment	909,000
Advance Bridge Replacement	273,000
Flood Insurance Cost Reduction	150,000
Recreation	210,000
Total	$ 24,364,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Planning, Engineering, and Design	$ 2,540,000
Total	$ 2,540,000

NON-FEDERAL COST: In accordance with the cost sharing legislation proposed by the Administration, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, and rights-of-way.	17,967,000	
Modify or relocate buildings, utilities, roads, bridges, and other facilities, where necessary in the construction of the project.	16,637,000	
Pay 37.88 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 50 percent and bear all costs of operation, maintenance, and replacement of flood control facilities.	54,085,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	361,000	
Total	89,050,000	80,000

The non-Federal sponsor will be required to make all payments concurrently with project construction.

NON-FEDERAL COST (Continued)

Flood Plain Management Requirement

Communities must agree to adopt additional flood plain management activities beyond the requirement to participate in the National Flood Insurance Program to qualify for Federal participation in a structural flood damage reduction project. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of storm water runoff, and preservation of open space.

STATUS OF LOCAL COOPERATION: The Commonwealth of Puerto Rico Department of Natural and Environmental Resources is the local sponsor. The Project Cooperation Agreement for the project is scheduled for execution in April 1997.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of $89,050,000 is the initial estimate presented to Congress for construction.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final environmental impact statement was filed in October 1991. No significant fish and wildlife habitats were identified, no specific mitigation measures were recommended as part of the flood control plan. A Water Quality Certificate (WQC) covering the entire project was issued by the Puerto Rico Environmental Quality Board on March 15, 1993.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1992.

1293

CORPS OF ENGINEERS

U.S. ARMY

LOCATION MAP

SCALE IN MILES

LEGEND

CHANNEL	NONE	WORK PROPOSED AS OF 30 SEPTEMBER 1995.
LEVEE	NONE	WORK PROPOSED WITH FUND AVAILABLE FOR F.Y. 1996.
DEBRIS BASIN	NONE	WORK PROPOSED WITH FUND REQUIRED FOR F.Y. 1997.
	⊠	WORK PROPOSED TO COMPLETE THE PROJECT AFTER F.Y. 1997.

RIO GRANDE DE LOIZA
PUERTO RICO
FLOOD CONTROL PROJECT

SCALE IN MILES

SCALE AS SHOWN

CORPS OF ENGINEERS
DIVISION: SOUTH ATLANTIC
DISTRICT: JACKSONVILLE
JANUARY 1996

APPROPRIATION: Construction, General - Multiple Purpose Power

PROJECT: Walter F. George Powerhouse, Florida (Major Rehabilitation) (New)

LOCATION: Walter F. George Lock and Dam is located at mile 181.5 on the Chattahoochee River, 50 miles south of Columbus, Georgia, and about 84 miles southeast of Montgomery, AL. The navigation lock and gated spillway are located on the right bank of the river. The powerhouse is on the left bank, across the river from the lock, adjacent to the gated spillway.

DESCRIPTION: The plan of improvement is to refurbish the four turbines, replace exciters with solid state (static) exciters and rewind the four generators.

AUTHORIZATION: Section 2 of the River and Harbor Act of 1945, further modified by the River and Harbor Act of 1946.

REMAINING BENEFIT-REMAINING COST RATIO: 1.3 at 7 3/4 percent.

TOTAL BENEFIT-COST RATIO: 1.3 at 7 3/4 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are from the Major Rehabilitation Evaluation Report approved in August 1995 at October 1994 price levels.

SUMMARIZED FINANCIAL DATA

							ACCUM. PCT. OF EST.FED. COST
Estimated Total Appropriation Requirement			$27,400,000	Allocations to 30 September 1995		0	
Future Non-Federal Reimbursement			27,400,000	Conference Allowance for FY 1996		0	
Estimated Federal Cost (Ultimate)			0	Allocation for FY 1996		0	
Estimated Non-Federal Cost			27,400,000	Allocation through FY 1996		0	0
Cash Contributions		0		Allocation Requested for FY 1997		900,000	3
Other Costs		0		Programmed Balance to Complete after FY 1997		26,500,000	
Reimbursements		27,400,000		Unprogrammed Balance to Complete after FY 1997		0	
Power	27,400,000						
Total Estimated Project Cost			$27,400,000				

STATUS: (1 Jan 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Construction not started	0	Being Determined

PHYSICAL DATA:

Rewind 4 generators
Replace exciters for 4 generators
Refurbish 4 turbines

JUSTIFICATION: The Walter F. George Powerhouse has experienced notable wear and deterioration levels since the early 1970's. The reliability has degraded faster than expected because of increased recurring cavitation problem as well as partial failure of generator coils as they approach 31 years of their 35-year life expectancy. Engineering analysis shows that these problems along with increasing generating outages can be expected to continue, into the future. The result of these increased outages, as well as the reduced plant efficiencies, will be increased operation and maintenance costs, increased production costs and loss of generating revenues to the treasury. Average annual benefits for the major rehabilitation project are $3,051,000.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate Construction	$ 200,000
Planning, Engineering, & Design	600,000
Construction Management	100,000
TOTAL	$ 900,000

1296

NON-FEDERAL COST: The costs allocable to power are reimbursable, and will be reviewed and adjusted based on construction costs when the project becomes operational.

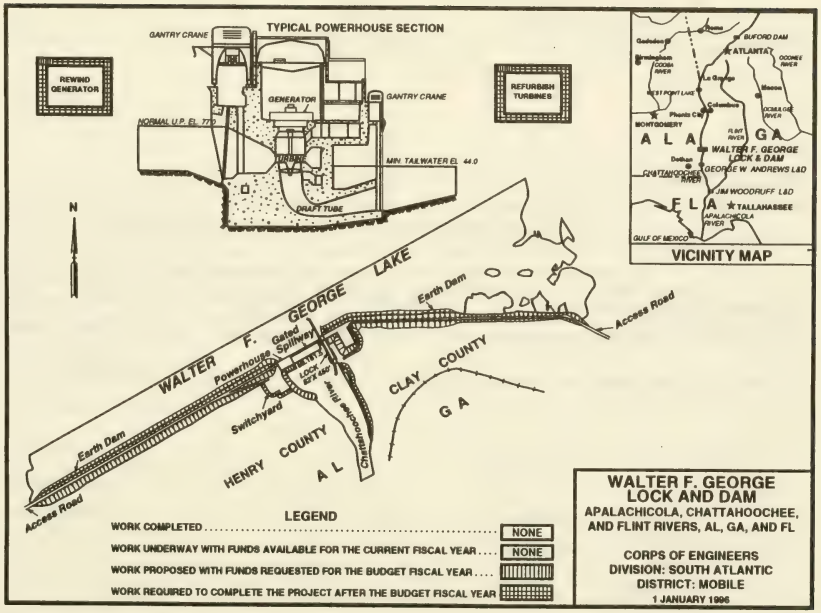
Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual, Operation, Maintenance, and Replacement Costs
Capital Cost allocated to power	$27,400,000	$ 0
Total Non-Federal Costs	$27,400,000	$ 0

STATUS OF LOCAL COOPERATION: Not applicable.

COMPARISON OF FEDERAL COST ESTIMATE: The current cost estimate of $27,400,000 at October 1995 price levels is the initial estimate presented to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment (EA) was prepared which addressed the expected impacts of the recommended alternative as well as other potential alternatives under consideration. The EA concluded with a Finding of No Significant Impact (FONSI). The EA and FONSI were fully coordinated with the public and State and Federal agencies. The commenting agencies concurred with the FONSI for the recommended alternative discussed in the environmental documentation. Agency comments were then incorporated into the final EA and FONSI, which was signed on 1 March 1995.

OTHER INFORMATION: Funds to initiate construction will be appropriated in Fiscal Year 1997.


TYPICAL POWERHOUSE SECTION
GANTRY CRANE
REWIND GENERATOR
GENERATOR
GANTRY CRANE
REFURBISH TURBINES
NORMAL U.P. EL. 770
TURBINE
MIN. TAILWATER EL. 44.0
DRAFT TUBE
N
WALTER F. GEORGE LAKE
Earth Dam
Gated Spillway
Powerhouse
Switchyard
Earth Dam
Access Road
Access Road
Chattahoochee River
CLAY COUNTY
HENRY COUNTY
A L
G A
LEGEND
WORK COMPLETED ..... NONE
WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR .... NONE
WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR ....
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR
WALTER F. GEORGE LOCK AND DAM
APALACHICOLA, CHATTAHOOCHEE, AND FLINT RIVERS, AL, GA, AND FL
CORPS OF ENGINEERS
DIVISION: SOUTH ATLANTIC
DISTRICT: MOBILE
1 JANUARY 1996
Gainesville
Rome
BUFORD DAM
Birmingham
COOSA RIVER
ATLANTA
OCONEE RIVER
LaGrange
WEST POINT L&D
Macon
Columbus
Phenix City
OCMULGEE RIVER
MONTGOMERY
FLINT RIVER
A L A
G A
WALTER F. GEORGE LOCK & DAM
Dothan
GEORGE W. ANDREWS L&D
CHATTAHOOCHEE RIVER
JIM WOODRUFF L&D
F L A
TALLAHASSEE
APALACHICOLA RIVER
GULF OF MEXICO
VICINITY MAP

APPROPRIATION: Construction, General - Channels and Harbors (Navigation)

PROJECT: Bayou La Batre, Alabama (Continuing)

LOCATION: The project is located in Mobile County, Alabama on the Mississippi Sound, about 30 miles south of Mobile, Alabama.

DESCRIPTION: The proposed plan of improvement is to deepen, widen, and extend the existing Federal channel serving Bayou La Batre, Alabama, as shown below. All work is programmed.

Provide a channel 18 feet deep and 120 feet wide within Mississippi Sound from the mouth of Bayou La Batre channel south to the Gulf Intracoastal Waterway (GIWW), then west along the GIWW alignment to the Pascagoula Ship Channel. Existing channel is 12 feet deep and 100 feet wide.

Provide a channel 18 feet deep and 100 feet wide for a distance of approximately 1.8 miles from the mouth of the Bayou upstream to and including the turning basin. The existing channel is 12 feet deep and 100 feet wide.

Provide a channel 14 feet deep and 75 feet wide from the turning basin to the Highway 188 bridge crossing, the terminus of the existing Federal project. The existing channel is 12 feet deep and 75 feet wide.

Extend a 14 feet deep and 75 feet wide channel approximately 1,130 feet above the Highway 188 bridge.

Extend a 14 feet deep and 50 feet wide channel approximately 530 feet into Snake Bayou from the turning basin, thence a 12 feet deep and 50 feet wide channel approximately 985 feet.

AUTHORIZATION: Water Resources Development Act of 1990.

REMAINING BENEFIT-REMAINING COST RATIO: 21.4 to 1 at 8 7/8 percent.

TOTAL BENEFIT-COST RATIO: 3.2 to 1 at 8 7/8 percent.

INITIAL BENEFIT-COST RATIO: 3.0 to 1 at 8 7/8 percent (FY 1992).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in August 1989 at October 1988 price levels.

SUMMARIZED FINANCIAL DATA

					ACCUM.	PCT. OF EST. FED. COST
Estimated Federal Cost	(CofE)	$ 6,184,000	Allocation to 30 September 1995	$ 4,144,000		
Estimated Federal Cost	(U.S.C.G.)	60,000	Conference Allowance for FY 1996	1,000,000		
Estimated Federal Cost		6,244,000	Allocation for FY 1996	917,000 1/		
			Allocations through FY 1996	5,061,000		82
			Allocation Requested for FY 1997	1,123,000		100
Estimated Non-Federal Cost		11,456,000	Programmed Balance to Complete after FY 1997	0		
Cash Contributions	687,000		Unprogrammed Balance to Complete after FY 1997	0		
Other Costs	10,769,000					
Total Estimated Project Cost		$17,700,000				

1/ Reflects $ 83,000 reduction assigned as savings and slippage.

STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	60	Sep 97

PHYSICAL DATA:

CHANNELS:	18 feet deep and 100 feet wide	1.8 miles
	14 feet deep and 75 feet wide	0.9 miles
	18 feet deep and 120 feet wide	19.9 miles
	14 feet deep and 50 feet wide	0.1 miles
	12 feet deep and 50 feet wide	0.2 miles

JUSTIFICATION: Channel improvements are needed in order to reduce existing vessel damages and delays during entry and exit of the port by commercial fishing vessels; reduce existing vessel damages and delays to newly constructed or repaired vessels; eliminate existing split operations of certain shipbuilding enterprises for vessel construction and repair; allow the use of larger, deeper-draft vessels required for the emerging butterfish industry; and allow the shipbuilding interests to construct or repair larger, deeper draft vessels. Major commodities of the project are

JUSTIFICATION (Continued):

commercial fisheries, and shipbuilding and repair. Average annual tonnages and values over the past ten years include 21 million pounds of shrimp valued at $50 million. An additional $50 million in seafood is trucked to Bayou La Batre each year for processing. The shipbuilding industry constructs an average of 150 vessels per year at a value of $90 million and repairs 1,000 vessels at a value of $4.6 million. Extensive development and infrastructure to support the commercial fishing and shipbuilding industries exist at Bayou La Batre. Presently, 57 seafood processing establishments and 17 shipbuilding and repair industries are located adjacent to the bayou. Without the proposed project, a large fleet of shrimp trawlers and butterfish vessels are damaged and/or delayed and their crews forego opportunities to earn incomes from shrimping or butterfishing because of inadequate channel depths. The 17 shipbuilding/repair facilities also incur extensive damages, delays, split operations, and forego mainly foreign contracts for larger construction/repair jobs because of the inadequate channel depths. With the project, the improved channel will generate $5,916,000 in annual benefits ($2,455,000 in commercial fishing benefits and $3,461,000 in shipbuilding/repair benefits which will come largely from foreign sales).

FISCAL YEAR 1997: The requested amount will be applied as follows:

Complete Channel Construction	$ 749,000
Complete Planning, Engineering, and Design	189,000
Complete Construction Management	185,000
Total	$1,123,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas.	$ 2,328,000	$72,000

NON-FEDERAL COSTS (Continued)

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Operation, Maintenance, and Replacement Cost
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	8,441,000	
Pay 10 percent of the costs allocated to general navigation facilities during construction.	687,000	
Reimburse an additional 10 percent of the costs of general navigation features allocated to commercial navigation within a period of 30 years following completion of construction as entirely reduced by a credit allowed for the value of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas provided for commercial navigation.	0	0
Total Non-Federal Costs	$11,456,000	$72,000

The non-Federal sponsor has agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The local sponsor is the State of Alabama. The Local Cooperation Agreement was executed in May 1993.

A bond issue resolution was passed by the Alabama legislature on April 27, 1989 to obtain authorization for the State of Alabama to issue $6 million in general obligation bonds toward the Non-Federal share of project construction. The State will also obtain all second-party agreements from Mobile County and Bayou La Batre Port Authority to secure the remaining non-Federal financing above the $6 million to be provided by the State. The Port Authority has passed a resolution pledging to secure its estimated $2.5 million in non-Federal financing. The Port Authority's financing will be generated through general obligation bonds. The $2.5 million in funds from Mobile County will be generated through the use of general fund surplus.

STATUS OF LOCAL COOPERATION (Continued):

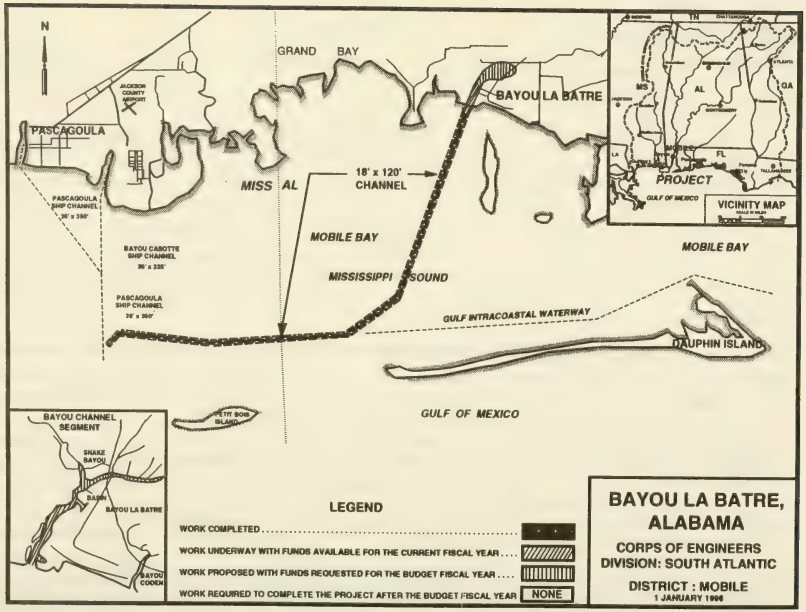
The current non-Federal cost estimate of $11,456,000 includes a cash contribution of $687,000. The Local Cooperation Agreement includes a cash contribution of $827,000. In a letter dated 17 September 1991, the non-Federal sponsor indicated that it is financially capable and willing to contribute the non-Federal share of the cost. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal (Corps) cost estimate of $6,184,000 is a decrease of $95,000 from the latest estimate of ($6,279,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Post Contract Award and other Estimating Adjustments	$ -95,000
Total	$ -95,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency in November 1988.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1989. Funds to initiate construction were appropriated in FY 1992.


N
GRAND BAY
JACKSON COUNTY AIRPORT
PASCAGOULA
BAYOU LA BATRE
MISS AL
18' x 120' CHANNEL
PASCAGOULA SHIP CHANNEL 36' x 350'
BAYOU CABOTTE SHIP CHANNEL 36' x 235'
PASCAGOULA SHIP CHANNEL 34' x 350'
MOBILE BAY
MISSISSIPPI SOUND
GULF INTRACOASTAL WATERWAY
DAUPHIN ISLAND
GULF OF MEXICO
PETIT BOIS ISLAND
MOBILE BAY
TN
MS
AL
GA
FL
LA
PROJECT
GULF OF MEXICO
VICINITY MAP
BAYOU CHANNEL SEGMENT
SNAKE BAYOU
BASIN
BAYOU LA BATRE
BAYOU COOKEN
LEGEND
WORK COMPLETED
WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR
WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR
NONE
BAYOU LA BATRE, ALABAMA
CORPS OF ENGINEERS
DIVISION: SOUTH ATLANTIC
DISTRICT : MOBILE
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Black Warrior and Tombigbee Rivers, Vicinity of Jackson, Alabama (Continuing)

LOCATION: The project is located on the Tombigbee River in Clarke County in southwest Alabama in the city of Jackson, Alabama, approximately 90 miles north of Mobile, Alabama.

DESCRIPTION: The plan is to construct a spur canal approximately 9 feet deep, 300 feet wide, and 1000 feet long. All work is programmed.

AUTHORIZATION: Energy and Water Development Appropriations Act of 1987.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable.

TOTAL BENEFIT-COST-RATIO: Not applicable.

INITIAL BENEFIT-COST RATIO: Not applicable

BASIS OF BENEFIT-COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA

						ACCUM. PCT OF EST. FED. COST
Estimated Federal Cost (CofE)		$16,123,000	Allocation to 30 September 1995		$ 1,106,000	
			Conference Allowance for FY 1996		500,000	
			Allocation for FY 1996		459,000 1/	
Estimated Non-Federal Cost		6,177,000	Allocation through FY 1996		1,565,000	10
Cash Contributions	1,791,000		Allocation Requested for FY 1997		600,000	13
Other Costs	4,386,000		Programmed Balance to Complete after FY 1997		$13,958,000	
Total Estimated Project Cost		$22,300,000	Unprogrammed Balance to Complete after FY 1997		0	

1/ Reflects $41,000 reduction assigned as savings and slippage.

STATUS: (1 Jan 1996)	PHYSICAL PERCENT COMPLETE	COMPLETION SCHEDULE
Construction not started	0	Being Determined

Division: South Atlantic District: Mobile Black Warrior and Tombigbee Rivers, Vicinity of Jackson, AL

PHYSICAL DATA

Channel 300 feet wide by 1,000 feet long by 9 feet deep.

JUSTIFICATION: There are no public port facilities to serve Jackson, Alabama on the Black Warrior-Tombigbee waterway between Mobile, 90 miles to the south and Demopolis, 127 miles to the north. The port facility would produce transportation savings to commodities currently moving in the Jackson area.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue Planning, Engineering and Design	$ 600,000
Total	$ 600,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resource Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas.	$3,979,000	
Pay 10 percent of the costs allocated to general navigation facilities during construction.	1,791,000	0
Pay 100 percent of the cost allocated to Berthing Area dredging (without credit)	407,000	
Reimburse an additional 10 percent of the costs of general navigation features allocated to commercial navigation within a period of 30 years following completion of construction, as entirely reduced by a credit allowed for the value of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas provided for commercial navigation.	0	0
Total Non-Federal Cost	$6,177,000	$0

Division: South Atlantic District: Mobile Black Warrior and Tombigbee Rivers, Vicinity of Jackson, AL

1306

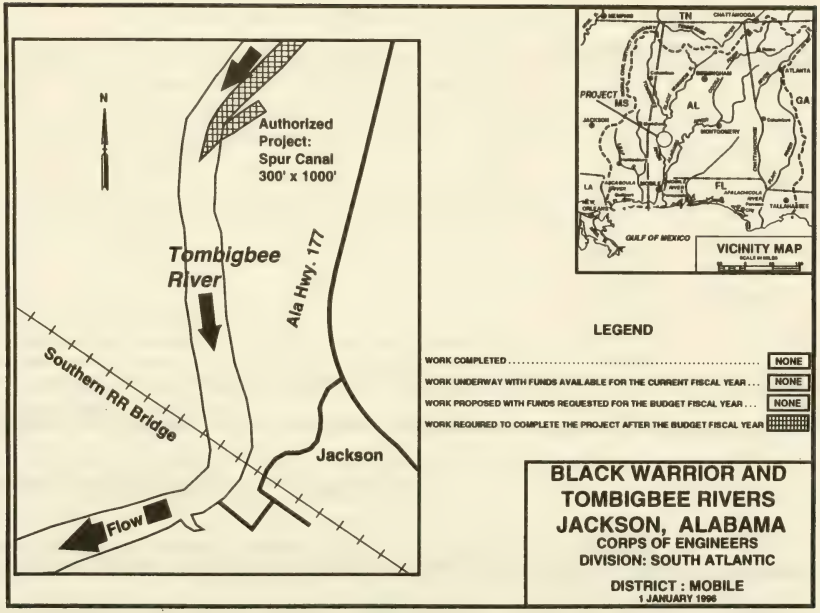
STATUS OF LOCAL COOPERATION: Voters of Clarke County, Alabama, approved a State Constitutional Amendment in the general election on 4 November 1986 which allowed the city of Jackson, Alabama, to appoint a Port Authority. The Jackson Port Authority will be the local sponsor. A Project Cooperation Agreement is scheduled to be signed in February 1999.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of $16,123,000 is a decrease of $18,000 from the latest estimate ($16,141,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$-18,000
Total	$-18,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement is scheduled to be filed with the Environmental Protection Agency in April 1998.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1987. There are $3,680,000 of Fish and Wildlife Mitigation lands and associated facilities scheduled to be provided for the project.


N
Authorized
Project:
Spur Canal
300' x 1000'
Tombigbee
River
Ala Hwy. 177
Southern RR Bridge
Jackson
Flow
TN
CHATTANOOGA
MEMPHIS
BIRMINGHAM
ATLANTA
PROJECT
MS
AL
GA
JACKSON
MONTGOMERY
LA
NEW ORLEANS
FL
TALLAHASSEE
GULF OF MEXICO
VICINITY MAP
LEGEND
WORK COMPLETED ..... NONE
WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR ... NONE
WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR ... NONE
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR
BLACK WARRIOR AND
TOMBIGBEE RIVERS
JACKSON, ALABAMA
CORPS OF ENGINEERS
DIVISION: SOUTH ATLANTIC
DISTRICT : MOBILE
1 JANUARY 1996

1308

APPROPRIATION TITLE: Construction, General - Locks and Dams (Navigation)

PROJECT: Tennessee-Tombigbee Waterway Wildlife Mitigation, Alabama and Mississippi (Continuing)

LOCATION: The project is located in the states of Alabama and Mississippi.

DESCRIPTION: The plan of improvement is to mitigate wildlife losses resulting from construction, operation, and maintenance of the Tennessee-Tombigbee Waterway project through acquisition of 88,000 acres of separable lands and management of 92,600 acres of existing project lands for mitigation purposes. All work is programmed.

AUTHORIZATION: Water Resources Development Acts of 1986 and 1992.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable. 1/

TOTAL BENEFIT - COST RATIO: Not applicable. 1/

INITIAL BENEFIT - COST RATIO: Not applicable. 1/

1/ Mitigation is incrementally justified through consideration of costs and non-monetary benefits; accordingly, a benefit-cost ratio has not been computed.

SUMMARIZED FINANCIAL DATA

				ACCUM. PCT.OF EST.FED COST
Estimated Federal Cost (CofE)	$87,300,000	Allocations to 30 September 1995	73,747,000	
Estimated Non-Federal Cost	0	Conference Allowance for FY 1996	12,400,000	
Cash Contributions $ 0		Allocation for FY 1996	9,272,000	
Other Costs 0		Allocations through FY 1996	83,019,000	95
Total Estimated Project Cost	$87,300,000	Allocation Requested for FY 1997	4,281,000	100
		Programmed Balance to Complete after FY 1997	0	
		Unprogrammed Balance to Complete after FY 1997	0	

2/ Reflects $ 1,028,000 reduction assigned as savings and slippage and $2,100,000 reprogrammed from the project.

STATUS: (1 Jan 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	89	Sep 1997

PHYSICAL DATA:

LANDS: 88,000 acres. Not less than 20,000 acres are to be acquired in the area of the Mobile-Tensaw Delta, Alabama, and not less than 25,000 acres are to be acquired in the areas of the Pascagoula River, the Pearl River, and the Mississippi River Basins, Mississippi. Other lands are to be acquired anywhere in the States of Alabama and Mississippi.

INITIAL DEVELOPMENT PROGRAM: Various facilities will be constructed and habitat improvements undertaken on the separable and existing project lands included in the Mitigation Program. The facilities and improvement will include up to seven wildlife management complexes to serve as operational bases for the State agencies; approximately 40 miles of access roads; over 20 waterfowl impoundments; equipment purchases; forestation of over 5000 acres; installation of various nesting structures; establishment of food plots; and various wildlife plantings.

JUSTIFICATION: Construction of the Tennessee-Tombigbee Waterway (TTW) resulted in unavoidable, significant losses of wildlife resources. These losses result primarily from conversion of terrestrial habitats to open water for project pools and canals, construction of project facilities, deposition of excavated material, and construction of recreation facilities. Construction of the Waterway adversely impacted approximately 62,800 acres of wildlife habitat, of which approximately 34,000 acres of bottomland hardwood habitat were converted to open water and other less valuable habitats. Bottomland hardwoods are recognized as a diminishing resource on a regional and national scale and are considered to be the most productive wildlife habitat in the project area.

Implementation of the Tennessee-Tombigbee Waterway Wildlife Mitigation Project began in FY 1990. Under the mitigation plan, 88,000 acres of separable lands will be acquired and approximately 92,600 acres of existing project lands will be managed for mitigation purposes. The monetary and nonmonetary benefits of the authorized mitigation plan are deemed to outweigh the costs of the plan in order to replace the significant wildlife losses resulting from construction, and operation and maintenance of the Tennessee-Tombigbee Waterway project.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Complete Lands and Damages	$ 1,532,000
Complete Initial Development Program on Existing Project Lands and Separable Lands	2,404,000
Complete Planning, Engineering and Design	277,000
Complete Construction Management	68,000
Total	$ 4,281,000

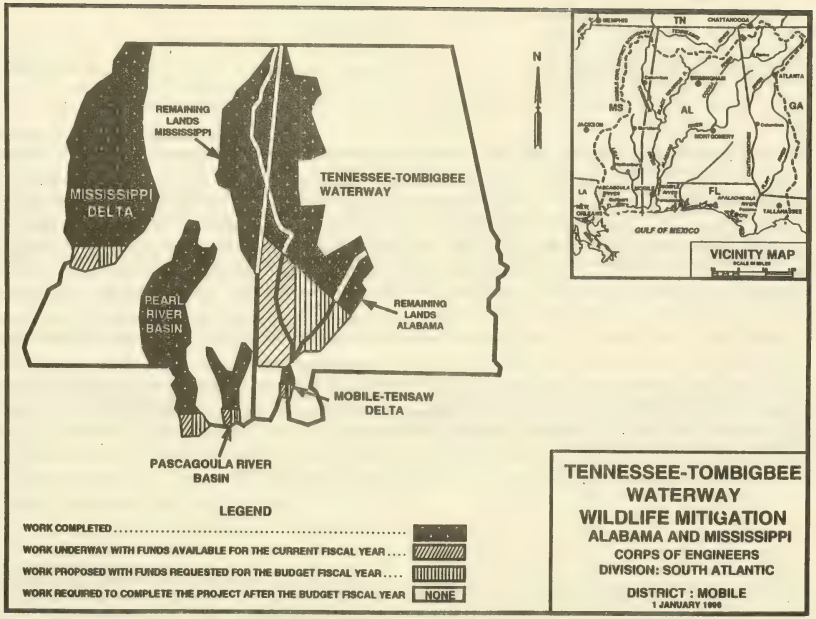
NON-FEDERAL COSTS: There are no non-Federal costs.

STATUS OF LOCAL COOPERATION: The authorizing legislation specifies that the states of Alabama and Mississippi shall provide for the management for wildlife purposes of lands acquired and lands currently owned by the United States in the project area which are designated as wildlife mitigation lands. The legislation also specifies that the Corps shall reimburse the states for such management and initial development costs as specified in a plan for management of mitigation lands to be developed jointly by the Corps, U.S. Fish and Wildlife Service (FWS), and the states of Alabama and Mississippi. The Mitigation Implementation Plan (MIP) for lands currently owned by the United States was developed jointly with the States and FWS as specified in the authorizing legislation. Three separate MIP's were prepared, one for each of the three separable land increments.

COMPARISON OF FEDERAL COST ESTIMATES: The current (Corps of Engineers) cost estimate of $87,300,000 is the same as the latest estimate ($87,300,000) presented to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The acquisition of 88,000 acres of private land into public ownership has been adequately addressed in the Environmental Impact Statement (EIS) contained in the Tennessee-Tombigbee Waterway, Alabama and Mississippi, Wildlife Mitigation Feasibility Study Report (WMFSR). Lands purchased will be managed primarily for public purposes as discussed in the wildlife management plan of the WMFSR. The EIS satisfied the National Environmental Policy Act requirements. However, additional coordination with the Endangered Species Office of the U.S. Fish and Wildlife Service will be required before any management activities are undertaken on areas where Federally endangered or threatened species are known to exist, to comply with the provisions of the Endangered Species Act of 1973, as amended.

OTHER INFORMATION: Funds to initiate preconstruction planning and construction were allocated in FY 1990. Funds to initiate land acquisition were appropriated in FY 1990.


REMAINING LANDS MISSISSIPPI
MISSISSIPPI DELTA
TENNESSEE-TOMBIGBEE WATERWAY
PEARL RIVER BASIN
REMAINING LANDS ALABAMA
MOBILE-TENSAW DELTA
PASCAGOULA RIVER BASIN
N
LEGEND
WORK COMPLETED
WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR
WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR
NONE
TENNESSEE-TOMBIGBEE WATERWAY
WILDLIFE MITIGATION
ALABAMA AND MISSISSIPPI
CORPS OF ENGINEERS
DIVISION: SOUTH ATLANTIC
DISTRICT : MOBILE
1 JANUARY 1990
MEMPHIS
TN
CHATTANOOGA
ATLANTA
MS
AL
GA
JACKSON
MONTGOMERY
LA
NEW ORLEANS
FL
TALLAHASSEE
GULF OF MEXICO
VICINITY MAP

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Manatee Harbor, Florida (Continuing)

LOCATION: Manatee Harbor is located in Manatee County on the east side of Tampa Bay 10 miles from the Gulf of Mexico. The channel extends from the main ship channel approximately 3 miles to Port Manatee.

DESCRIPTION: The project provides maintenance of the existing 40-foot deep channel and turning basin and provides for construction of a widener at the northwest end of the channel and enlargement of the turning Basin area.

AUTHORIZATION: The Water Resources Development Act of 1986 and the Water Resources Development Act of 1990.

REMAINING BENEFIT - REMAINING COST RATIO: 1.7 TO 1 at 7 3/4 percent.

TOTAL BENEFIT - COST RATIO: 1.6 to 1 at 8 7/8 percent.

INITIAL BENEFIT - COST RATIO: 1.7 to 1 at 8 7/8 percent (FY 1988)

BASIS OF BENEFIT-COST RATIO: Benefits are included in the Manatee Harbor, Florida Limited Re-evaluation Report completed in March 1993 (revised January 1994) at December 1994 price level.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost (CoE)		$ 18,585,000
Estimated Federal Cost (USCG)		15,000
Estimated Non-Federal Cost		14,400,000
Cash Contribution	$ 6,481,000	
Other	7,919,000	
Total Estimated Project Cost		33,000,000

ACCUM. PCT OF EST FED COST	STATUS: (1 January 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
	Channels & Canals		
	Main Channels & Turning Basin	0	Being determined
	Entire Project	0	Being determined

SUMMARIZED FINANCIAL DATA (Continued):

Allocations to 30 September 1995	1,680,000	
Conference Allowance for FY 1996	1,450,000	
Allocations for FY 1996	1,330,000 1/	
Allocations through FY 1996	3,010,000	24
Allocations Requested for FY 1997	2,800,000	71
Scheduled Balance to Complete After FY 1997	12,775,000	
Unscheduled Balance to Complete After FY 1997	0	

1/ Reflects $120,000 reduction assigned as savings and slippage.

PHYSICAL DATA

Provide for maintenance of the existing 40-foot deep draft navigation channel and turning basin extending from the Tampa Bay Channel to Port Manatee. Initial construction of a widener at the northwest end of Manatee Harbor Channel and deepening of 6.6 acres to provide a larger turning basin. An 11.5 acre emergent island will be created as mitigation for the deepening.

JUSTIFICATION: In less than 9 years, Port Manatee became the major Non-Federal port in Florida. The Port is now and is expected to remain as a bulk commodity port which services deep draft vessels. The Manatee Port Authority continues to develop facilities in an on-going effort to attract waterborne interests. Shoaling in the channel has restricted vessel loadings resulting in increased transportation costs. The existing wideners and turning basin are not adequate for safe navigation. The project improvements would remedy those problems and help expand the economic base of the surrounding area. Estimated average annual benefits are as follows.

Annual Benefits	Amount
Deep Draft Navigation	$ 7,874,000
Total	$ 7,874,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Turning Basin Dredging	$2,323,000
Construction Management	477,000
TOTAL	$2,800,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 25,000	
Pay 25 percent of the costs allocated to deep draft navigation during construction.	6,207,000	
Reimburse an additional 10 percent of the costs of general navigation features allocated to commercial navigation within a period of 30 years following completion of construction as reduced by a credit allowed for the value of lands, easements, rights of way, relocations, and dredged or excavated material disposal areas provided for commercial navigation.	0	
Pay 100% of the costs associated with dredging berthing areas and mitigation provisions.	8,168,000	
Total Non-Federal Cost	$ 14,400,000	

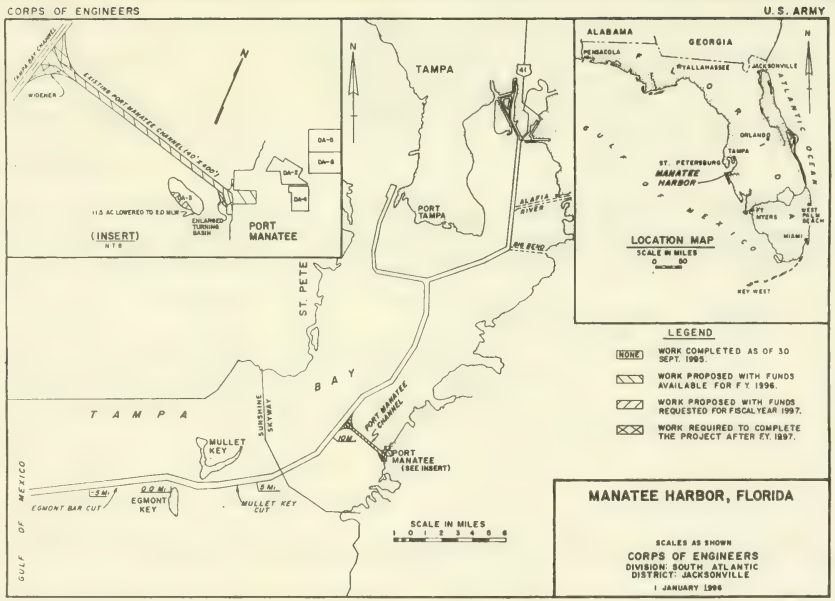
STATUS OF LOCAL COOPERATION: The Port Manatee Authority strongly supports this project. A Project cooperation agreement was executed in the first quarter of FY 1995.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal (Corps of Engineers) cost estimate of $18,585,000 is a decrease of $99,000 from the latest cost estimate of $18,684,000 presented to Congress (FY 1996). This change includes the following:

Item	Amount
Price Escalation on Construction Features	-99,000
Total	-$ 99,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Assessment and the Finding of No Significant Impact (FONSI) were signed on April 3, 1992.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1982 and funds to initiate construction were appropriated in FY 1988. A PAC was approved in November 1990 and an LRR was approved in July 1994.


CORPS OF ENGINEERS
U.S. ARMY
TAMPA BAY CHANNEL
WIDENER
EXISTING PORT MANATEE CHANNEL (TED'S BOOT)
N
DA-5
DA-8
DA-7
DA-6
DA-3
11.5 AC LOWERED TO 8.0 MLW
CHLORINATED TURNING BASIN
PORT MANATEE
(INSERT)
NTS
TAMPA
41
PORT TAMPA
ALAFIA RIVER
ONE BEND
ST PETE
BAY
TAMPA
SUNSHINE SKYWAY
MULLET KEY
PORT MANATEE CHANNEL
10 MI.
PORT MANATEE (SEE INSERT)
2 MI.
0.0 MI.
EGMONT KEY
EGMONT BAR CUT
2 MI.
MULLET KEY CUT
GULF OF MEXICO
SCALE IN MILES
1 0 1 2 3 4 5 6
ALABAMA
GEORGIA
PENSACOLA
TALLAHASSEE
JACKSONVILLE
FLORIDA
ATLANTIC OCEAN
GULF OF MEXICO
ORLANDO
TAMPA
ST. PETERSBURG
MANATEE HARBOR
FT MYERS
WEST PALM BEACH
MIAMI
KEY WEST
LOCATION MAP
SCALE IN MILES
0 50
LEGEND
NONE
WORK COMPLETED AS OF 30 SEPT. 1995.
WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 1996.
WORK PROPOSED WITH FUNDS REQUESTED FOR FISCAL YEAR 1997.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 1997.
MANATEE HARBOR, FLORIDA
SCALES AS SHOWN
CORPS OF ENGINEERS
DIVISION: SOUTH ATLANTIC
DISTRICT: JACKSONVILLE
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Miami Harbor Channel, Florida (Continuing)

LOCATION: Miami Harbor is located in Biscayne Bay, a shallow salt water sound on the Atlantic Coast near the southern end of the Florida peninsula.

DESCRIPTION: The project provides for construction and maintenance of a 44 feet deep entrance channel, 42 feet deep interior channels, and a turning basin with a depth of 42 feet and a diameter of 1,600 feet located at the Dodge-Lummus Island intersection.

AUTHORIZATION: Water Resources Development Act of 1990.

REMAINING BENEFIT-REMAINING COST RATIO: 1.4 to 1 at 7 3/4 percent.

TOTAL BENEFIT-COST RATIO: 1.5 to 1 at 8 7/8 percent

INITIAL BENEFIT-COST RATIO: 1.5 to 1 at 8 7/8 percent (FY 1992)

BASIS OF BENEFIT-COST RATIO: Benefits are from the June 1989 Feasibility Report as contained in the Chief of Engineers Report dated 25 September 1989 at October 1988 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Appropriation Requirement (CoE)		$ 51,066,000
Estimated Appropriation Requirement (USCG)		134,000
Estimated Total Appropriation Requirement		51,200,000
Estimated Federal Cost (Ultimate)		51,200,000
Estimated Non-Federal Cost		32,500,000
Cash Contributions	$ 27,564,000	
Other Costs	4,936,000	
Total Estimated Project Cost		83,700,000

STATUS (1 Jan 96)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Channels		
Phase I	100	Aug 1994
Phase II	41	Being determined
Entire Project	32	Being determined

PHYSICAL DATA

Dredging 5,950,000 cubic yards

SUMMARIZED FINANCIAL DATA (Continued):

Allocations to 30 September 1995	14,831,000	
Conference Allowance for FY 1996	1,000,000	
Allocation for FY 1996	917,000 1/	
Allocations through FY 1996	15,748,000	31
Allocation Requested for FY 1997	500,000	33
Programmed Balance to Complete after FY 1997	34,818,000	
Unprogrammed Balance to Complete after FY 1997	0	

1/ Reflects $83,000 assigned as savings and slippage.

JUSTIFICATION: The port is the largest cruise ship terminal in the world as well as a major commercial harbor in Florida. Over 2.5 million passengers and 2.4 million tons of cargo passed through the harbor in 1986. Additionally, expansion of the port facilities has been occurring over the past several years. The June 1989 Feasibility Report identified problems with inadequate channel depths for deep draft navigation, an inadequate turning basin for vessels calling at Lummus/Dodge Island, and inadequate channel widths in the bar cut turn and in Government cut. Average annual benefits are as follows:

Annual Benefits	Amount
Commercial Navigation	$ 8,949,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Planning, Engineering and Design	$ 100,000
Construction Management	400,000
Total	$ 500,000

1319

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-federal sponsor must comply with the requirements listed below.

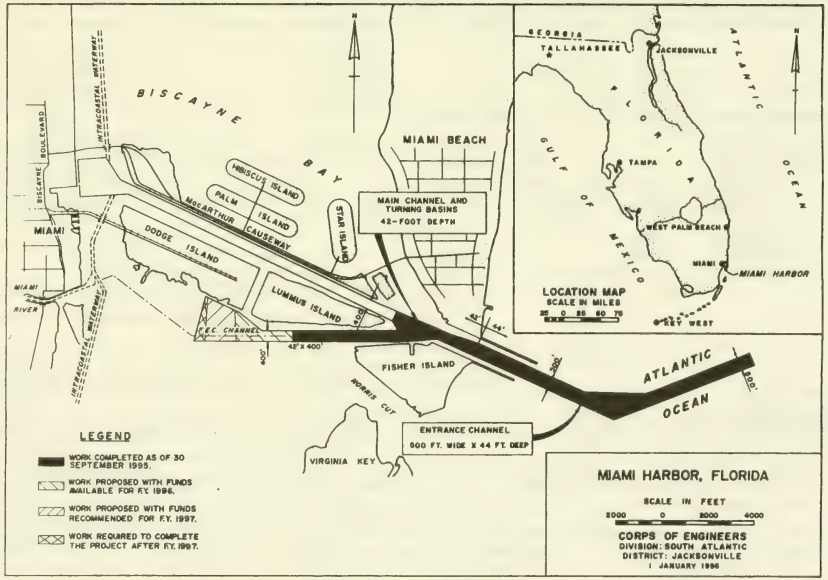
Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 53,000	
Modify or relocate utilities, roads, bridges, and other facilities, where necessary for the construction of the project.	2,471,000	
Pay 35 percent of the costs allocated to deep draft navigation during construction.	27,564,000	
Pay 100% of the costs associated with dredging berthing areas.	2,412,000	
Credit for Lands and relocations.	0	
Total Non-Federal Cost	$ 32,500,000	0

STATUS OF LOCAL COOPERATION: The local sponsor is the Miami Port Authority. The Port Authority awarded the Phase II contract in September 1994. An agreement for reimbursement under Section 204(e) of the Water Resources Development Act of 1986 was executed on 1 November 1991.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of $51,066,000 is no change from the latest estimate ($51,066,000) presented to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement and Section 404(b)(1) report were filed with EPA on 22 September 1991.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1989. Funds to initiate construction were appropriated in FY 1992. Phase I of the project was completed in August 1994.


BISCAYNE BAY
MIAMI BEACH
MIAMI
BISCAYNE BOULEVARD
INTRACOASTAL WATERWAY
HIBISCUS ISLAND
PALM ISLAND
MacARTHUR CAUSEWAY
STAR ISLAND
DODGE ISLAND
LUMMUS ISLAND
MAIN CHANNEL AND TURNING BASINS 42-FOOT DEPTH
MIAMI RIVER
F.E.C. CHANNEL
42' x 400'
FISHER ISLAND
NORRIS CUT
VIRGINIA KEY
ENTRANCE CHANNEL 500 FT. WIDE X 44 FT. DEEP
ATLANTIC OCEAN
LEGEND
WORK COMPLETED AS OF 30 SEPTEMBER 1995.
WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 1996.
WORK PROPOSED WITH FUNDS RECOMMENDED FOR F.Y. 1997.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 1997.
GEORGIA
TALLAHASSEE
JACKSONVILLE
FLORIDA
GULF OF MEXICO
TAMPA
WEST PALM BEACH
MIAMI
MIAMI HARBOR
KEY WEST
LOCATION MAP
SCALE IN MILES
MIAMI HARBOR, FLORIDA
SCALE IN FEET
2000 0 2000 4000
CORPS OF ENGINEERS
DIVISION: SOUTH ATLANTIC
DISTRICT: JACKSONVILLE
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: AIWW - Replacement of Federal Highway Bridges, North Carolina (Continuing)

LOCATION: The two remaining federally owned, obsolete swing span bridges over the Atlantic Intracoastal Waterway are at Hobucken, and Fairfield, North Carolina. The high level Walter B. Jones Bridge (formerly Wilkerson Creek) opened to traffic on 31 July 1981, the high level Joseph P. Knapp Bridge (formerly Coinjock) opened to traffic on 1 July 1986 and the new high level Core Creek Bridge opened to traffic on 5 October 1993.

DESCRIPTION: The project provides for replacing five existing low level bridges with fixed span 2-lane bridges, except the Joseph P. Knapp Bridge which has 4-lanes. The new bridges will have a vertical clearance of 65 feet at mean high water. All work is programmed.

AUTHORIZATION: River and Harbor Act of 1970, Water Resources Development Act of 1976, and Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable.

TOTAL BENEFIT - COST RATIO: Not applicable.

INITIAL BENEFIT - COST RATIO: Not applicable.

BASIS OF BENEFIT - COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA		STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	$77,100,000	Walter B. Jones Bridge	100	Sep 1983
		Joseph P. Knapp Bridge	100	Jun 1987
Estimated Non-Federal Cost	$ 0	Core Creek Bridge	100	Mar 1994
		Hobucken Bridge	40	Being Determined
Total Estimated Project Cost	$77,100,000	Fairfield Bridge	9	Being Determined
		Entire Project	57	Being Determined

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1995	$42,346,000	
Conference Allowance for FY 1996	5,600,000	
Allocation for FY 1996	5,136,000 1/	
Allocations through FY 1996	47,482,000	62
Allocation Requested for FY 1997	6,400,000	70
Programmed Balance to Complete After FY 1997	23,218,000	
Unprogrammed Balance to Complete After FY 1997	0	

1/Reflects $464,000 reduction assigned as savings and slippage.

PHYSICAL DATA

Lands and Damages - 723 acres
Bridges (Walter B. Jones, Joseph P. Knapp, Core Creek, Hobucken, and Fairfield)
Type - Fixed span, 2-lane (Except Joseph P. Knapp which is 4-lane).
Vertical Clearance - 65 feet at mean high water
Horizontal Navigation Opening - 90 feet minimum

JUSTIFICATION: The two remaining bridges to be replaced were constructed during the period from 1930 to 1935, and are now substandard with relation to current criteria recommended by the Federal Highway Administration, the N.C. Department of Transportation and Highway Safety (NCDOTHS), and the American Association of State Highway and Transportation Officials (AASHTO). Both of the remaining bridges to be replaced are overstressed when applying the current user loading and when considering the present deteriorated state of the structures and loss of section due to corrosion. Overstress ranges up to 80%. The Hobucken and Fairfield Bridges are restricted to one-lane traffic, are posted for maximum loads of 10, and 12 tons for single vehicles and have clear roadway widths of only 18 and 20 feet, respectively. The bridges have vertical roadway clearances of only 13 feet 6 inches and are difficult to traverse, especially for bus and truck traffic. During the period January 1971 to September 1994, there were 32 accidents at Hobucken Bridge, and 19 at Fairfield Bridge involving vehicles and tugs striking the bridge structures. An accident in December 1995 at Hobucken Bridge resulted in the death of one contract bridge operator. Although remedial repairs are being made continuously, this work can no longer render the bridges safe. These conditions, together with the economics of operation and maintenance, underscore the urgent need for the immediate replacement of the bridges.

FISCAL YEAR 1997: The requested amount of $6,400,000 will be applied as follows:

Continue Land Acquisition for Fairfield Bridge	$ 22,000
Initiate and Complete Relocations for Fairfield Bridge	178,000
Continue Construction of Hobucken Bridge	2,970,000
Initiate Construction of Fairfield Bridge	2,265,000
Planning, Engineering and Design for Hobucken Bridge	60,000
Construction Management for Hobucken Bridge	370,000
Planning, Engineering and Design for Fairfield Bridge	110,000
Construction Management for Fairfield Bridge	425,000
Total	$6,400,000

NON-FEDERAL COSTS: In accordance with the authorizing legislation, the State of North Carolina must accept ownership responsibilities for the bridges upon completion, including all costs of operation, maintenance, and replacement as listed below:

	Annual Operation, Maintenance Repair, Rehabilitation and Replacement Costs
Hobucken Bridge	$10,000
Fairfield Bridge	10,000

STATUS OF LOCAL COOPERATION: The State of North Carolina, by resolutions adopted 2 August 1974 and 7 February 1975, reaffirmed its intention of providing the terms of local cooperation with the exception of the 25 percent cost sharing. The Water Resources Development Act of 1976 modified the terms of local cooperation to delete the non-Federal cost sharing requirement for the Walter B. Jones and Joseph P. Knapp Bridges. The Water Resources Development Act of 1986 modified the terms of local cooperation to delete the non-Federal cost-sharing requirement for the Core Creek, Hobucken, and Fairfield Bridges. A local assurance agreement pursuant to Section 221 of the River and Harbor and Flood Control Act of 1970 (PL 91-611) was signed by the Secretary of the Army on 28 July 1977 for the Walter B. Jones Bridge and on 10 August 1979 for the Joseph P. Knapp Bridge. The Section 221 Agreement for the Joseph P. Knapp Bridge was amended on 1 February 1983 to assure that State highway improvements would proceed concurrently with the bridge construction. These improvements have been completed.

A project cooperation agreement was executed in December 1990 for the Core Creek Bridge and in December 1993 for the Hobucken Bridge. The project cooperation agreement for Fairfield Bridge is scheduled for execution in April 1996.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of $77,100,000 is a decrease of $3,500,000 from the latest estimate ($80,600,000) presented to Congress (FY 1996). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	-$2,875,000
Post Contract Award and Other Estimating Adjustments	- 818,000
Price Escalation on Real Estate	193,000
Total	-$3,500,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS for all five bridges was filed with CEQ on 16 November 1970. During engineering and design, each bridge is being evaluated separately and updated EIS's were filed or are scheduled to be filed with the Environmental Protection Agency as follows:

	Schedule to EPA	
	Draft	Final
Original	-	Nov 1970
Updated		
Walter B. Jones Bridge	May 1974	Dec 1975
Joseph P. Knapp Bridge	Aug 1980	Mar 1981
Core Creek Bridge	Aug 1989	Jul 1990
Hobucken Bridge	Mar 1992	Jun 1992
Fairfield Bridge	Sep 1993	Jun 1994

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1973 and funds to initiate construction were appropriated in FY 1974.

Walter B. Jones Bridge

SUMMARIZED FINANCIAL DATA FOR PROGRAMMED SEPARABLE ELEMENT:

Estimated Federal Cost	$10,692,000
Estimated Non-Federal Cost	0
Total Estimated Project Cost	$10,692,000

REMAINING BENEFIT-REMAINING COST RATIO FOR PROGRAMMED SEPARABLE ELEMENT: Not Applicable

TOTAL BENEFIT-COST RATIO FOR PROGRAMMED SEPARABLE ELEMENT: Not Applicable

Joseph P. Knapp Bridge

SUMMARIZED FINANCIAL DATA FOR PROGRAMMED SEPARABLE ELEMENT:

Estimated Federal Cost	$11,826,000
Estimated Non-Federal Cost	0
Total Estimated Project Cost	$11,826,000

REMAINING BENEFIT-REMAINING COST RATIO FOR PROGRAMMED SEPARABLE ELEMENT: Not Applicable.

TOTAL BENEFIT-COST RATIO FOR PROGRAMMED SEPARABLE ELEMENT: Not Applicable.

Core Creek Bridge

SUMMARIZED FINANCIAL DATA FOR PROGRAMMED SEPARABLE ELEMENT:

Estimated Federal Cost	$12,882,000
Estimated Non-Federal Cost	0
Total Estimated Project Cost	$12,882,000

REMAINING BENEFIT-REMAINING COST RATIO FOR PROGRAMMED SEPARABLE ELEMENT: Not Applicable.

TOTAL BENEFIT-COST RATIO FOR PROGRAMMED SEPARABLE ELEMENT: Not Applicable.

Hobucken Bridge

SUMMARIZED FINANCIAL DATA FOR PROGRAMMED SEPARABLE ELEMENT:

Estimated Federal Cost	$16,100,000
Estimated Non-Federal Cost	0
Total Estimated Project Cost	$16,100,000

REMAINING BENEFIT-REMAINING COST RATIO FOR PROGRAMMED SEPARABLE ELEMENT: Not Applicable.

1326

TOTAL BENEFIT-COST RATIO FOR PROGRAMMED SEPARABLE ELEMENT: Not Applicable.

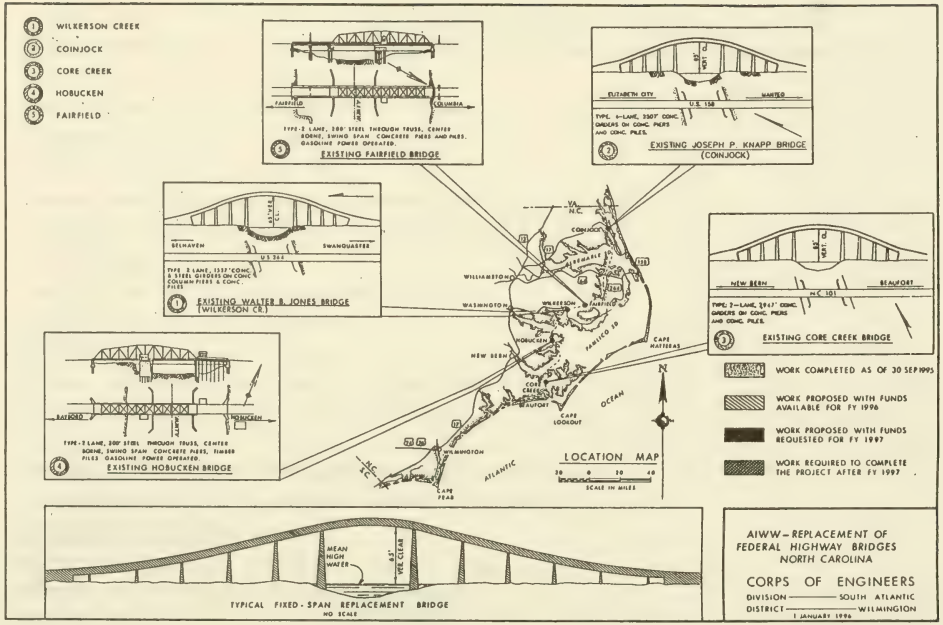
Fairfield Bridge

SUMMARIZED FINANCIAL DATA FOR PROGRAMMED SEPARABLE ELEMENT:

Estimated Federal Cost	$25,600,000
Estimated Non-Federal Cost	0
Total Estimated Project Cost	$25,600,000

REMAINING BENEFIT-REMAINING COST RATIO FOR PROGRAMMED SEPARABLE ELEMENT: Not Applicable.

TOTAL BENEFIT-COST RATIO FOR PROGRAMMED SEPARABLE ELEMENT: Not Applicable.


1 WILKERSON CREEK
2 COINJOCK
3 CORE CREEK
4 HOBUCKEN
5 FAIRFIELD
FAIRFIELD
COLUMBIA
EXISTING FAIRFIELD BRIDGE
ELIZABETH CITY
HERTFORD
U.S. 158
EXISTING JOSEPH P. KNAPP BRIDGE (COINJOCK)
BELHAVEN
SWANQUARTER
U.S. 264
EXISTING WALTER B. JONES BRIDGE (WILKERSON CR.)
NEW BERN
BEAUFORT
N.C. 101
EXISTING CORE CREEK BRIDGE
BAYFORD
HOBUCKEN
EXISTING HOBUCKEN BRIDGE
VA.
N.C.
COINJOCK
ALBEMARLE
WILLIAMSTON
WASHINGTON
WILKERSON
FAIRFIELD
HOBUCKEN
NEW BERN
CORE CREEK
BEAUFORT
CAPE LOOKOUT
CAPE HATTERAS
HATTERAS IS.
OCEAN
ATLANTIC
WILMINGTON
CAPE FEAR
N.C.
LOCATION MAP
30 0 30 60
SCALE IN MILES
WORK COMPLETED AS OF 30 SEP 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997
MEAN HIGH WATER
VER. CLEAR
TYPICAL FIXED-SPAN REPLACEMENT BRIDGE
NO SCALE
AIWW – REPLACEMENT OF FEDERAL HIGHWAY BRIDGES NORTH CAROLINA
CORPS OF ENGINEERS
DIVISION — SOUTH ATLANTIC
DISTRICT — WILMINGTON
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Dade County, Florida (Continuing)

LOCATION: Dade County is on the southeast coast of Florida. The project area consists of 9.3 miles of the Atlantic shoreline of the county from Government Cut north to Bakers Haulover Inlet, 1.2 miles at Haulover Beach Park, and the section of beach along 2.5 miles north of Haulover Beach Park at Sunny Isles.

DESCRIPTION: The project provides for a protective and recreational beach with a dune for beach erosion control and hurricane protection along 9.3 miles and a protective and recreational beach along 3.7 miles. The berm width is 50 feet at elevation +9.0 feet MLW for 10.5 miles and 20 feet wide at +9.0 feet MLW for 2.5 miles.

AUTHORIZATION: Flood Control Act of 1968, Water Resources Development Act of 1974, Supplemental Appropriations Act of 1985, and Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because initial construction has been completed.

TOTAL BENEFIT-COST RATIO: 2.6 to 1 at 8-3/8 percent.

INITIAL BENEFIT-COST RATIO: 5.1 to 1 at 3-1/4 percent (FY 1965).

BASIS OF BENEFIT-COST RATIO: Initial benefits are from the June 1965 Dade County Report at October 1964 price levels. Total benefits are from the April 1985 Dade County, North of Haulover Beach Park, Design Memorandum at October 1984 price levels.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		170,400,000
Initial Construction	39,177,000	
Periodic Nourishment	131,223,000	
Estimated Non-Federal Cost		154,600,000
Initial Construction	33,041,000	
Cash Contributions	31,202,000	
Other Costs	1,839,000	

STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Breakwaters and Seawalls		
Jetty Extension	100	Aug 1976
Upgrading N. Jetty at Government Cut	100	Nov 1983
Jetty Rehabilitation at Haulover Inlet	100	Nov 1986
Beach Replenishment		
Initial Fill	100	Aug 1989

SUMMARIZED FINANCIAL DATA (Continued):

			ACCUM. PCT. OF EST. FED COST
Periodic Nourishment	121,559,000		
Cash Contributions	121,559,000		
Other Costs	0		
Total Estimated Project Cost		325,000,000	
Initial Construction	72,218,000		
Periodic Nourishment	252,782,000		
Allocations to 30 September 1995		48,659,000	
Conference Allowance for FY 1996		1,300,000	
Allocation for FY 1996		1,192,000 1/	
Allocations through FY 1996		49,851,000	29
Allocation Requested for FY 1997		2,100,000	30
Programmed Balance to Complete after FY 1997		116,851,000	
Unprogrammed Balance to Complete after FY 1997		3,698,000	

Periodic Nourishment		
Sunny Isles	0	Being determined
Dade County	10	Being determined

1/ Reflects $108,000 assigned as savings and slippage.

PHYSICAL DATA

Jetty Extension	1
Initial Beach Fill	15,597,000 cy
Advance Nourishment	450,000 cy
Periodic Nourishment	3,540,000 cy/10 years

JUSTIFICATION: The Dade County shore, occupied by Miami Beach and a number of smaller communities, is highly developed and probably represents the most densely concentrated resort area in the world. The area is heavily visited by tourists throughout the year. The estimated current attendance for the project shore exceeds 15 million annually. Prior to the initial beach fill, recession of the shore caused loss of valuable beaches and property and placed seawalls and other structures under direct wave attack. At a number of locations, erosion undermined or threatened to undermine shorefront structures. Dade County lies in a zone of relatively high hurricane frequency, and many of the most intense hurricanes of record have passed over or near the area. Storm surge and waves generated in the ocean and in Biscayne Bay by past hurricanes have caused major tidal flooding in the project area. A severe hurricane crossing the area on a critical path could cause a major flood disaster. The September 1926 hurricane devastated Miami and took 100 lives. Hurricane Andrew impacted the shorefront in Dade County in August 1992. The project prevented an

JUSTIFICATION (Continued):

estimated $20 million in damages to shorefront development, with a loss of only 2 percent of the beach fill. The beach fill loss due to Hurricane Andrew is being restored under the authority of PL 84-99 during the overall renourishment of the project during FY 95 and FY 96. The beaches of Dade County are of prime importance as tourist attractions. It is essential to the economy of the area that the beaches be maintained and preserved. Average annual benefits are as follows:

Annual Benefits	Amount
Beach Erosion Control	$ 3,795,000
Recreation	22,181,000
Storm Damage Prevention	1,879,000
Land Enhancement	125,000
Total	$27,980,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Complete Renourishment for Contract #2	$ 577,000
Complete Construction Management for Contract #2	117,000
Complete Construction of N. Jetty at Govt Cut Mod	540,000
Construction Management for N. Jetty Mod	156,000
Complete E&D for Bahamian Aragonite Sand Test Beach	710,000
Total	$2,100,000

NON-FEDERAL COST: In accordance with the cost-sharing concepts reflected in the authorizing legislation, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, and rights-of-way.	$ 1,839,000	
Pay 41.3 percent of the costs allocated to initially nourish the reach south of Bakers Haulover Inlet; 50.2 percent of the	152,761,000	

NON-FEDERAL COST (Continued)

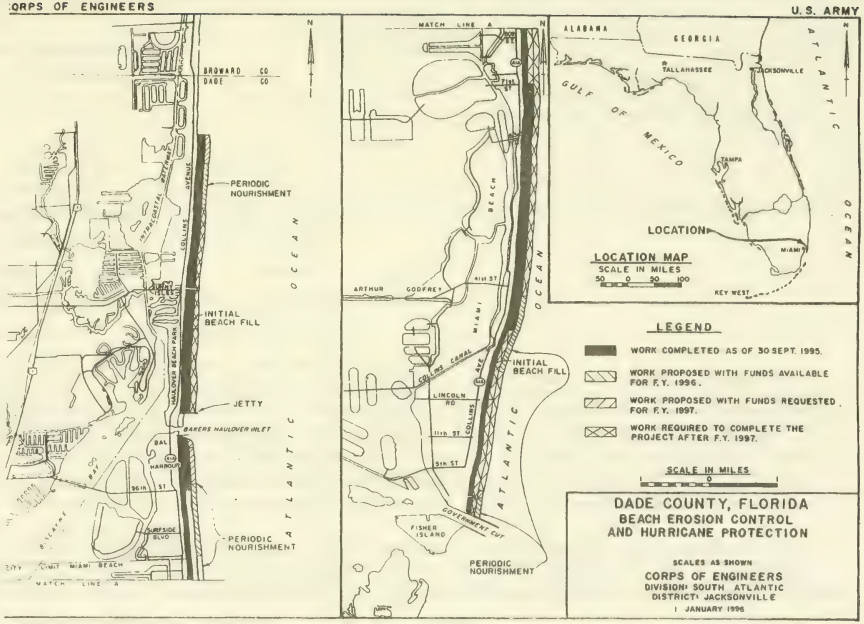
Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
costs to renourish the reach south of Bakers Haulover Inlet; 47.5 percent of the costs to renourish Sunny Isles; and 30 percent to nourish and renourish the reach at Haulover Beach Park.		
Total	$154,600,000	$ 0

STATUS OF LOCAL COOPERATION: The Dade County Board of County Commissioners, Miami, Florida, is the local sponsor. A Local Cooperation Agreement pursuant to Section 221 of the River and Harbor and Flood Control Act of 1970 (PL 91-611) was accepted by the Secretary of the Army on 16 January 1973. A supplemental agreement for reimbursement to the local sponsor for the Bal Harbour portion was approved on 30 June 1976. An agreement for the section north of Haulover Beach Park was signed on 20 June 1986.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of $170,400,000 reflects no change from the latest estimate ($170,400,000) presented to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT AND COMPLIANCE WITH CLEAN WATER ACT: The final EIS was filed with CEQ on 27 August 1976. The provisions of Section 404 of the Clean Water Act were met by a Section 404(b)(1) Evaluation in June 1984. A supplement to the EIS was filed with EPA on 18 March 1983.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1973 and initial construction funds were appropriated in FY 1977. Funds to initiate construction of the Sunny Isles (North of Haulover Beach Park) segment were appropriated in FY 1985. Section 69 of the Water Resources Development Act of 1974 authorized initial construction by non-Federal interests of the 0.85-mile segment immediately south of Bakers Haulover Inlet (Bal Harbour). Local interests have accomplished the work and reimbursement was provided by funds included in the 1976 Appropriations Act. Section 501(a) of the Water Resources Development Act of 1986 authorized the extension of Federal participation in beach nourishment from 10 years to the life of the project; however, a period of 50 years was used for economic analysis of the project.


CORPS OF ENGINEERS
U.S. ARMY
BROWARD CO
DADE CO
PERIODIC NOURISHMENT
INTRACOASTAL WATERWAY
COLLINS AVENUE
INITIAL BEACH FILL
HALLOVER BEACH PARK
JETTY
BAKERS HAULOVER INLET
BAL HARBOUR
96 th ST
ATLANTIC BLVD
SURFSIDE BLVD
PERIODIC NOURISHMENT
CITY LIMIT MIAMI BEACH
MATCH LINE A
ATLANTIC OCEAN
MATCH LINE A
FISHER ISLAND
ARTHUR GODFREY
41st ST
MIAMI BEACH
CONAL CANAL
ARK
INITIAL BEACH FILL
LINCOLN RD
COLLINS
11th ST
5th ST
GOVERNMENT CUT
FISHER ISLAND
PERIODIC NOURISHMENT
ATLANTIC OCEAN
ALABAMA
GEORGIA
TALLAHASSEE
JACKSONVILLE
GULF OF MEXICO
TAMPA
LOCATION
MIAMI
KEY WEST
ATLANTIC OCEAN
LOCATION MAP
SCALE IN MILES
50 0 50 100
LEGEND
WORK COMPLETED AS OF 30 SEPT. 1995.
WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 1996.
WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 1997.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 1997.
SCALE IN MILES
0
DADE COUNTY, FLORIDA
BEACH EROSION CONTROL
AND HURRICANE PROTECTION
SCALES AS SHOWN
CORPS OF ENGINEERS
DIVISION: SOUTH ATLANTIC
DISTRICT: JACKSONVILLE
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Beach Erosion Control

PROJECT: Martin County, Florida (Continuing)

LOCATION: Martin County is located about 100 miles north of Miami and due east of Lake Okeechobee. The Martin County Atlantic coastline is located in the southeastern section of Florida with the Indian River Lagoon to the West, the Atlantic Ocean to the East, St. Lucie Inlet to the South, and St. Lucie County to the North. The beach control project itself is located on Hutchinson Island and stretches from the St. Lucie/Martin County line to the southern boundary of Stuart Public Beach Park.

DESCRIPTION: The recommended plan of improvement for Martin County provides for restoration of a protective beach along 3.75 miles of shoreline. Initial restoration of the project shoreline would require 1,297,000 cubic yards of material. The borrow area for initial and future renourishments is located within a shoal area about 3,000 feet offshore of the southern project area. The restored beach will require approximately 589,600 cubic yards of material every 11 years to maintain project dimensions. The plan includes restoration of the primary dune, as needed, to an elevation of 12.5 feet above mean sea level and a top width of 20 feet, as well as a 35-foot-wide protective berm at an elevation of 8.0 feet mean sea level. The recommended plan was designed to reduce associated environmental impacts to minimum levels. Of primary importance is the impact of project construction on sea turtle nesting. In order to avoid these impacts, the construction and future nourishments of the Martin County shore protection project is scheduled to occur between November 1st and April 15th.

AUTHORIZATION: Water Resources Development Act of 1990.

REMAINING BENEFIT-REMAINING COST RATIO: 5.0 to 1 at 8 percent.

TOTAL BENEFIT-COST RATIO: 5.0 to 1 at 8 percent.

INITIAL BENEFIT-COST RATIO: 5.0 to 1 at 8 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are from the Martin County, Florida, General Design Memorandum dated December 1993 (revised June 1994) at December 1993 price levels.

SUMMARIZED FINANCIAL DATA:			ACCUM. PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost			$26,000,000	Beach Replenishment		
Initial Construction		5,422,000		Initial Fill	0	Apr 1996
Periodic Nourishment		20,578,000		Periodic Nourishment	0	Being determined
Estimated Non-Federal Cost			$29,900,000	Entire Project	0	Being determined
Initial Construction		6,223,000				
Cash Contributions	6,223,000					
Other Costs		0				
Periodic Nourishment		23,677,000				
Cash Contributions	23,677,000					
Other Costs		0				
Total Estimated Project Cost			55,900,000			
Initial Construction		11,645,000				
Periodic Nourishment		44,255,000				

Allocations to 30 September 1995	$ 1,293,000	
Conference Allowance for FY 1996	3,202,000	
Allocation for FY 1996	3,215,000 1/	
Allocations through FY 1996	4,508,000	16
Allocation Requested for FY 1997	109,000	17
Programmed Balance to Complete after FY 1997	21,197,000	
Unprogrammed Balance to Complete after FY 1997	186,000	

1/ Reflects $266,000 reduction assigned as savings and slippage and $279,000 reprogrammed to the project.

PHYSICAL DATA

Initial Beach Fill	1,297,500 cubic yards
Future Periodic Nourishment	589,600 cubic yards every 11 years

JUSTIFICATION: Martin County is a rapidly developing region of southern Florida with an estimated 1985 population of

80,000. The population is expected to grow to 165,000 by the year 2020. Economic development depends heavily upon tourism, with other major industries including aerospace, plastics, and agriculture. The majority of the development on Hutchinson Island within the previous 10 years consists of multi-unit residential structures. A feasibility report was completed in September 1985. A General Design Memorandum (GDM) with an Environmental Assessment was approved June 1994. The recommended plan stated in the GDM, estimated to cost $55,900,000 with an estimated Federal cost of $26,000,000 and an estimated non-Federal cost of $29,900,000, provides for initial beach fill and periodic nourishment for 3.75 miles beginning at the St. Lucie/Martin County and proceeding south on Hutchinson Island. The plan includes restoration of the primary dune and a 35-foot protective beach to provide storm damage protection along the project area. The average annual benefits amount to $5,674,000. The benefit cost ratio is 5.0 to 1. The non-Federal sponsor is the Martin County Board of County Commissioners who verified their support by referendum at their 26 March 1991 meeting. The project is authorized for construction by the Water Resources Development Act of 1990. The cost sharing requirements as stated in the GDM call for Martin County Board of County Commissioners to pay 53.41 percent of all costs associated with the initial construction and future nourishments of the project, presently estimated at $29,900,000.

The annual reduction of damages to development based on current shorefront development is estimated to be $4.972 million. Average annual benefits for the recommended plan are as follows:

Annual Benefits	Amount
Storm Damage Prevention	4,972,000
Recreation Benefits	702,000
Total	5,674,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Monitoring of Fish and Wildlife Facilities	$ 94,000
Planning, Engineering, and Design	8,000
Construction Management	7,000
Total	$ 109,000

NON-FEDERAL COST: In accordance with the cost-sharing concepts reflected in the Martin County, Florida, General Design Memorandum dated December 1993 (revised June 1994).

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights-of-way, relocations, and dredged material disposal areas.	$ 214,000	
Pay 53.41 percent of the costs allocated to initial fill.	6,009,000	
Pay 53.41 percent of the costs allocated to periodic renourishment of the project shoreline.	23,667,000	
Total Non-Federal Costs	$29,900,000	$0

STATUS OF LOCAL COOPERATION: By letter of 26 March 1991, the sponsor, Martin County, expressed their interest in continuing an agreement with the Federal government to extend the beach nourishment of the project. A Project Cooperation Agreement was executed in August 1995.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of $26,000,000 is an increase of $400,000 from the latest estimate $25,600,000 presented to Congress (FY 1996). This increase is the direct result of an error in applying the appropriate cost sharing on the construction feature for initial construction.

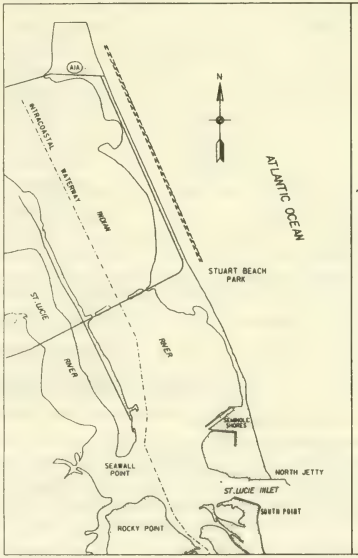
Item	Amount
Price Escalation on Construction Features	$ 0
Design Changes	0
Schedule Changes	0
Other	400,000
Total	$400,000

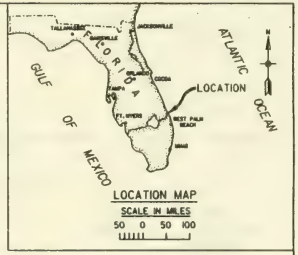
STATUS OF ENVIRONMENTAL IMPACT STATEMENT AND COMPLIANCE WITH CLEAN WATER ACT: A final EIS was prepared and included in the Feasibility Report dated September 1985 (revised June 1986). An Environmental Assessment and a preliminary FONSI (Finding-of-No-Significant-Impact) are included in the General Design Memorandum dated December 1993 (revised June 1994). The State of Florida, Department of Environmental Protection, provided an "Intent to Issue" Water Quality Certification (WQC) March 1995.

OTHER INFORMATION: Funds to initiate preconstruction, engineering, and design were appropriated in Fiscal Year 1992. Funds to initiate construction were appropriated in Fiscal Year 1995.

CORPS OF ENGINEERS

U.S. ARMY





LOCATION MAP

SCALE IN MILES

50 0 50 100

LEGEND

- NONE — WORK PROPOSED AS OF 30 SEPTEMBER 1996.
- WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 1996.
- NONE — WORK PROPOSED WITH FUNDS RECOMMENDED FOR F.Y. 1997.
- NONE — WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 1997.

MARTIN COUNTY, FLORIDA
SHORE PROTECTION

SCALE IN MILES

1 ½ 0 1

SCALE AS SHOWN

CORPS OF ENGINEERS
DIVISION: SOUTH ATLANTIC
DISTRICT: JACKSONVILLE
1 JANUARY 1996

87

APPROPRIATION TITLE: Construction, General - Beach Erosion Control

PROJECT: Palm Beach County, Florida - Jupiter/Carlin (Continuing)

LOCATION: The Jupiter/Carlin segment is located in Palm Beach County, Florida, on the lower east coast of the state, immediately south of Jupiter Inlet and about 50 miles north of Miami.

DESCRIPTION: This is a reimbursable project that was constructed in May 1995 by Palm Beach County. The project consisted of an increased beach width of approximately 180 feet with a berm elevation of 10 feet mean low water, providing 7 years of advanced nourishment. The project is for initial beach fill and periodic nourishment along 6,400 feet of beach south of Jupiter Inlet, of which 4,650 feet is within Jupiter beach and Carlin county parks. Beach fill material came from the ebb tidal shoal at Jupiter Inlet. The project will provide storm damage reduction benefits along the adjacent property, road, and two county parks from storm damage to upland development.

AUTHORIZATION: River and Harbor Act of 1962.

REMAINING BENEFIT-REMAINING COST RATIO: 1.5 to 1 at 8 percent

TOTAL BENEFIT-COST RATIO: 1.9 to 1 at 8 percent

INITIAL BENEFIT-COST RATIO: 1.9 to 1 at 8 percent

BASIS OF BENEFIT-COST RATIO: Benefits are from the Palm Beach County, Florida, General Design Memorandum, Addendum for Jupiter/Carlin Segment dated June 1991 (revised September 1994) at July 1992 price levels.

SUMMARIZED FINANCIAL DATA:			ACCUM. PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		4,824,000		Beach Replenishment		
Initial Construction	1,925,000					
Periodic Nourishment	2,899,000			Initial Fill	0	Being determined
				Periodic Nourishment	0	Being determined
Estimated Non-Federal Cost		57,046,000		Entire Project	0	Being Determined
Initial Construction	1,671,000					
Cash Contributions	1,639,000					
Other Costs	32,000					

Division: South Atlantic District: Jacksonville Palm Beach County, FL

SUMMARIZED FINANCIAL DATA (Continued):

				ACCUM. PCT. OF EST. FED COST
Periodic Nourishment		55,375,000		
Cash Contributions	54,974,000			
Other Costs	401,000			
Total Estimated Project Cost			61,870,000	
Initial Construction		3,596,000		
Periodic Nourishment		58,274,000		
Total Estimated Programmed Construction Cost			58,318,000	
Initial Construction			44,000	
Periodic Nourishment			58,274,000	
Total Estimated Unprogrammed Construction Cost			3,552,000	
Total Estimated Project Cost			61,870,000	
Allocations to 30 September 1995			$ 671,000	
Conference Allowance for FY 1996			0	
Allocation for FY 1996			0	
Allocations through FY 1996			671,000	14
Allocation Requested for FY 1997			1,919,000	41
Programmed Balance to Complete after FY 1997			2,234,000	
Unprogrammed Balance to Complete after FY 1997			0	

PHYSICAL DATA

Initial Beach Fill	1,297,500 cubic yards
Future Periodic Nourishment	589,600 cubic yards every 7 years

JUSTIFICATION: Palm Beach County is a highly developed region of southern Florida. Economic development depends heavily upon tourism, with other major industries including aerospace, plastics, and agriculture. A county-wide General Design Memorandum (GDM) with an Environmental Impact Statement (EIS) was approved in 1987. A GDM addendum with final supplement to the EIS for Jupiter/Carlin, prepared by the sponsor, was approved February 1995. The project was constructed by the sponsor in May 1995. The project is authorized for construction by P.L. 87-874 dated 23 October 1962. The cost sharing requirements, as stated in the GDM addendum, call for Palm Beach County Commissioners to pay 45.80 percent of all costs associated with the initial construction and future nourishments of the project up to the 10-year limit of Federal participation, and 100 percent thereafter. The annual reduction of damages to development based on current shorefront development is estimated to be $730,000. Average annual benefits for the recommended plan, as stated in the GDM addendum (approved February 1995), are as follows:

Annual Benefits	Amount
Storm Damage Prevention	$ 730,000
Recreation Benefits	824,000
Total	$1,554,000

FISCAL YEAR 1997: The requested amount will be to reimburse sponsor as follows:

Estimate of Federal Share of Eligible Costs (54.20%)	
Anticipated Jupiter/Carlin Reimbursement pending Audit	$1,919,000
Total	$1,919,000

NON-FEDERAL COST: In accordance with the cost-sharing concepts reflected in the Palm Beach County, Florida, General Design Memorandum, Addendum for Jupiter/Carlin Segment, approved February 1995.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights-of-way, relocations, and dredged material disposal areas.	$ 433,000	
Pay 45.6 percent of the costs allocated to initial fill.	1,639,000	
Pay 94.3 percent of the costs allocated to periodic renourishment up to 10-year limit; thereafter, 100 percent of the project shoreline.	54,974,000	
Total	$57,046,000	$0

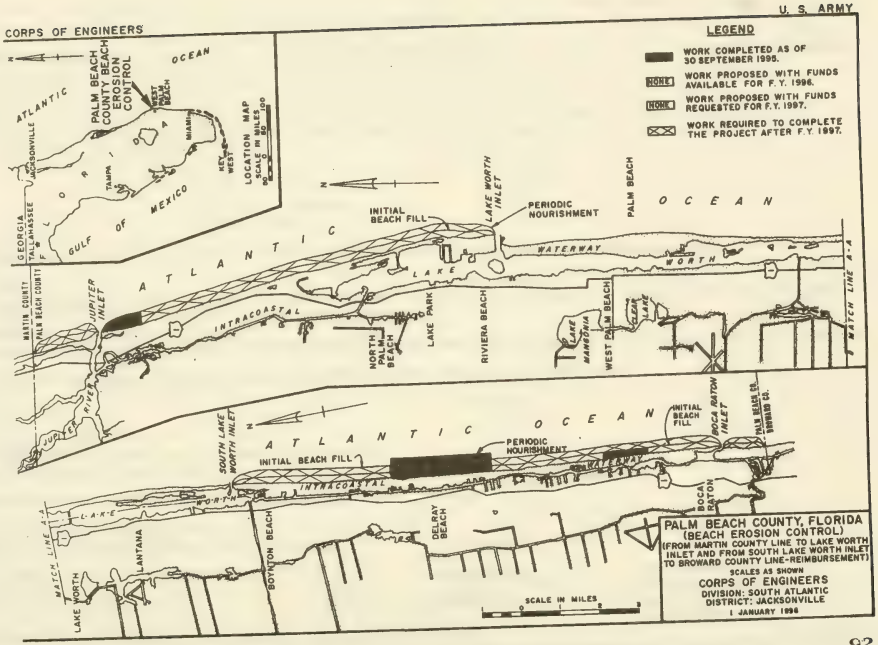
STATUS OF LOCAL COOPERATION: A Project Cooperation Agreement was executed on 21 March 1995.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of $4,824,000 is initial estimate presented to Congress for the Jupiter/Carlin element.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A final supplement to the EIS was prepared and a Record of Decision was signed 21 March 1995.

OTHER INFORMATION: Allocation of funds to review the sponsor's engineering and design was made in Fiscal Year 1993.

23-577 96 – 43


CORPS OF ENGINEERS
U. S. ARMY
LEGEND
WORK COMPLETED AS OF 30 SEPTEMBER 1995.
WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 1996.
WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 1997.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 1997.
PALM BEACH COUNTY BEACH EROSION CONTROL
WEST PALM BEACH
ATLANTIC OCEAN
GULF OF MEXICO
FLORIDA
JACKSONVILLE
GEORGIA
TALLAHASSEE
TAMPA
MIAMI
KEY WEST
LOCATION MAP
SCALE IN MILES
MARTIN COUNTY
PALM BEACH COUNTY
JUPITER INLET
JUPITER RIVER
INTRACOASTAL
WATERWAY
INITIAL BEACH FILL
PERIODIC NOURISHMENT
LAKE WORTH INLET
PALM BEACH
OCEAN
ATLANTIC
LAKE
NORTH PALM BEACH
LAKE PARK
RIVIERA BEACH
LAKE MANGONIA
WEST PALM BEACH
LAKE CLARA
WORTH
MATCH LINE
SOUTH LAKE WORTH INLET
BOCA RATON INLET
PALM BEACH CO.
BROWARD CO.
LAKE WORTH
LANTANA
BOYNTON BEACH
DELRAY BEACH
BOCA RATON
SCALE IN MILES
PALM BEACH COUNTY, FLORIDA
(BEACH EROSION CONTROL)
(FROM MARTIN COUNTY LINE TO LAKE WORTH INLET AND FROM SOUTH LAKE WORTH INLET TO BROWARD COUNTY LINE-REIMBURSEMENT)
SCALES AS SHOWN
CORPS OF ENGINEERS
DIVISION: SOUTH ATLANTIC
DISTRICT: JACKSONVILLE
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Beach Erosion Control

PROJECT: Pinellas County, Florida (Continuing)

LOCATION: The project is located along the west-central coast of Florida covering about 25 miles of the island beaches in the Clearwater-St. Petersburg area of Pinellas County, extending from Dunedin Pass to Pass-A-Grille.

DESCRIPTION: The project provides for restoration of 5,000 feet of beach at Clearwater Beach Island; 41,700 feet of beach at Sand Key; 10,700 feet of beach at Treasure Island; 2,800 feet of beach on Long Key; advance nourishment of each island; construction of 600 feet of revetment at Long Key and breakwaters at locations along Sand Key, along with periodic nourishment of each island as needed. All work is programmed, except for the Clearwater Beach segment.

AUTHORIZATION: River and Harbor Act of 1966 and Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: Clearwater Beach Island, 1.2 to 1.0 at 8 percent; Sand Key, 9.8 to 1.0 at 8 percent; Treasure Island, 7.6 to 1.0 at 8 percent; Long Key 1.8 to 1.0 at 8 percent.

TOTAL BENEFIT-COST RATIO: Clearwater Beach Island, 1.2 to 1.0 at 8 percent; Sand Key, 9.8 to 1.0 at 8 percent; Treasure Island, 7.6 to 1.0 at 8 percent; Long Key 1.8 to 1.00 at 8 percent.

INITIAL BENEFIT-COST RATIO: Clearwater Beach Island, 1.2 to 1.0 at 8 percent; Sand Key, 9.8 to 1.0 at 8 percent; Treasure Island, 7.6 to 1.0 at 8 percent; Long Key 1.8 to 1.00 at 8 percent.

BASIS OF BENEFIT-COST RATIO: Benefit-cost ratios are based upon the approved Limited Re-Evaluation Report and Environmental Summary for Pinellas County, Florida, Beach Erosion Control Project dated April 1994 (Revised August 1994) at October 1993 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED COST
Estimated Federal Cost		129,000,000	
Programmed Construction		111,884,000	
Initial Construction	19,011,000		
Periodic Nourishment	92,873,000		
Unprogrammed Construction		17,116,000	
Initial Construction	2,259,000		
Periodic Nourishment	14,857,000		
Estimated Non-Federal Cost		96,000,000	
Programmed Construction		83,810,000	
Initial Construction	17,416,000		
Cash Contributions	17,354,000		
Other Costs	62,000		
Periodic Nourishment	66,394,000		
Cash Contributions	66,158,000		
Other Costs	236,000		
Estimated Non-Federal Cost			
Unprogrammed Construction		12,190,000	
Initial Construction	2,007,000		
Cash Contributions	2,007,000		
Other Costs	0		
Periodic Nourishment	10,183,000		
Cash Contributions	10,183,000		
Other Costs	0		
Total Estimated Programmed Construction Cost		195,694,000	
Initial Construction		36,427,000	
Periodic Nourishment		159,267,000	

STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Groins:		
Treasure Island	100	Sep 1976
Treasure Island Groin No. 2 Extension	100	Jun 1983
Pass-A-Grille	100	Jun 1984
Redington Shores Breakwater	100	Mar 1986
Rehabilitation of N. Groin at Johns Pass	100	Dec 1987
Breakwaters:		
Long Key	100	Sep 1986
Initial Fill:		
Treasure Island	100	Jul 1969
Long Key	100	Apr 1980
Sand Key		
Redington Shores	100	Sep 1985
Remainder	75	Being determined
Nourishment:		
Treasure Island 1st	100	Nov 1971
Treasure Island 2nd	100	Mar 1973
Treasure Island 3rd	100	Jun 1976
Treasure Island 4th	100	Jun 1983
Treasure Island Rmdr	50	Being determined
Long Key (Advance)	100	Apr 1980
Remainder	45	Being determined
Sand Key	0	Being determined
Clearwater	0	Unprogrammed
Entire Project	9	Being determined

Total Estimated Unprogrammed Construction Cost		29,306,000	
Initial Construction	4,266,000		
Periodic Nourishment	25,040,000		
Total Estimated Project Cost		225,000,000	
Initial Construction	40,693,000		
Periodic Nourishment	184,307,000		
Allocations to 30 September FY 1995		20,853,000	
Conference Allowance for FY 1996		3,000,000	
Allocation for FY 1996		2,552,000 1/	
Allocations through FY 1996		23,405,000	18
Allocations Requested for FY 1997		5,865,000	23
Programmed Balance to Complete after FY 1997		82,614,000	
Unprogrammed Balance to Complete after FY 1997		17,116,000	

1/ Reflects $249,000 savings and slippage, and $199,000 reprogrammed from the project.

PHYSICAL DATA

Placement of Initial Beach Fill	Sand Key = 2,173,000 CY Treasure Island = 599,000 CY Long Key = 67,000 CY Clearwater Beach Island = 130,000 CY
Periodic Beach Nourishment	Sand Key = 365,200 CY every 5 yrs Treasure Island = 275,000 CY every 5 yrs Long Key = 275,000 CY every 5 yrs Clearwater Beach Island = 55,000 CY every 5 yrs

JUSTIFICATION: Erosion problems include the lowering of beach profiles, recession of the shorelines, and damage to upland properties. The shore is highly developed and used intensively year-round. The project will provide needed restoration and stability of the beaches and protection for shore development. Nourishment completed to date at Treasure Island has been highly successful in retaining the material and providing protection to development while providing a large recreational beach. Average annual benefits for each project segment are as follows (annual benefits are based upon the approved Limited Re-Evaluation Report and Environmental Summary for Pinellas County, Florida, Beach Erosion Control Project dated April 1994 (Revised August 1994) at October 1993 price levels):

JUSTIFICATION (Continued):

Annual Benefits	Amount
Sand Key:	
Beach Erosion Control/Storm Damage Prevention	$18,969,000
Recreation	13,225,000
Total	$32,194,000
Long Key:	
Beach Erosion Control/Storm Damage Prevention	$ 339,000
Recreation	293,000
Total	$ 632,000
Treasure Island:	
Beach Erosion Control/Storm Damage Prevention	$ 9,924,000
Recreation	0
Total	$ 9,924,000
Clearwater Beach Island:	
Beach Erosion Control/Storm Damage Prevention	$ 679,000
Recreation	62,000
Total	$ 741,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Beach Replenishment	
Sand Key 1st Renourishment	$ 4,012,000
Long Key 4th Renourishment	1,060,000
Planning, Engineering, and Design	
Long Key 4th Renourishment	12,000
Treasure Island 6th Renourishment	46,000
Supervision and Administration	
Sand Key 1st Renourishment	661,000
Long Key 4th Renourishment	74,000
Total	$ 5,865,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the authorizing legislation and as agreed to in the Project Cooperation Agreement (PCA) which was executed 7 April 1995. The PCA is supported by the approved Limited Re-Evaluation Report and Environmental Summary for Pinellas County, Florida, Beach Erosion Control Project dated April 1994 (Revised August 1994) at October 1993 price levels:

Requirements of Local Cooperation	Payments During Construction and Reimbursement	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, and rights-of-way	$ 298,000	
Pay percentage of all costs associated with the nourishment and renourishment of the project	95,702,000	
Total Non-Federal Costs	$ 96,000,000	

STATUS OF LOCAL COOPERATION: Assurances of local cooperation from the Pinellas County Board of Commissioners were accepted by the District Engineer on 22 March 1967. Additional assurances required by Public Law 91-646 were accepted in May 1971. The Pinellas County Board of County Commissioners has adopted resolutions agreeing to act as local sponsor for the Long Key, St. Petersburg Beach, and Sand Key segments. A project cooperation agreement, in accordance with cost-sharing provisions and Section 501(b) of the WRDA of 1986, was executed 7 April 1995.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of $129,000,000 is an increase of $6,000,000 from the latest estimate ($123,000,000). This increase is in accordance with cost-sharing provisions and Section 501(b) of the WRDA of 1986 and the Project Cooperation Agreement executed 7 April 1995. This change includes the following item:

Item	Amount
Price Escalation and Inflation	$6,000,000
Total	$6,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement for Sand Key, Pinellas County project, and Section 404(b)(1) Evaluation were filed with the Environmental Protection Agency on 8 November 1985.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1968. Funds to initiate construction were appropriated in FY 1969. Project completion date reflects 50-year Federal participation as authorized by the Water Resources Development Act of 1986, and in accordance with the Project Cooperation Agreement executed
7 April 1995.

SUMMARIZED FINANCIAL DATA:

Separable Element - Clearwater

Estimated Federal Cost			14,600,000
Programmed Construction		0	
Unprogrammed Construction	14,600,000		
Estimated Non-Federal Cost			9,100,000
Programmed Construction		0	
Cash Contributions	0		
Other Costs	0		

SUMMARIZED FINANCIAL DATA (Continued)

Estimated Non-Federal Cost			
Unprogrammed Construction		9,100,000	
Cash Contributions	9,100,000		
Other Costs	0		
Total Estimated Programmed Construction Cost			0
Total Estimated Unprogrammed Construction Cost			23,700,000
Total Estimated Project Cost			23,700,000

REMAINING BENEFIT-REMAINING COST RATIO: 1.2 to 1.0 at 8 percent.

TOTAL BENEFIT-COST RATIO: 1.2 to 1.0 at 8 percent.

Separable Element - Sand Key

Estimated Federal Cost			80,800,000
Programmed Construction		78,284,000	
Unprogrammed Construction		2,516,000	
Estimated Non-Federal Cost			62,100,000
Programmed Construction		59,010,000	
Cash Contributions	58,774,000		
Other Costs	236,000		
Estimated Non-Federal Cost			
Unprogrammed Construction		3,090,000	
Cash Contributions	3,090,000		
Other Costs	0		
Total Estimated Programmed Construction Cost			137,294,000
Total Estimated Unprogrammed Construction Cost			5,606,000
Total Estimated Project Cost			142,900,000

REMAINING BENEFIT-REMAINING COST RATIO: 9.8 to 1.0 at 8 percent.

TOTAL BENEFIT-COST RATIO: 9.8 to 1.0 at 8 percent.

Separable Element - Treasure Island

Estimated Federal Cost		11,400,000
Estimated Non-Federal Cost		10,100,000
Cash Contributions	10,100,000	
Other Costs	0	
Total Estimated Project Cost		21,500,000

REMAINING BENEFIT-REMAINING COST RATIO: 7.6 to 1.0 at 8 percent.

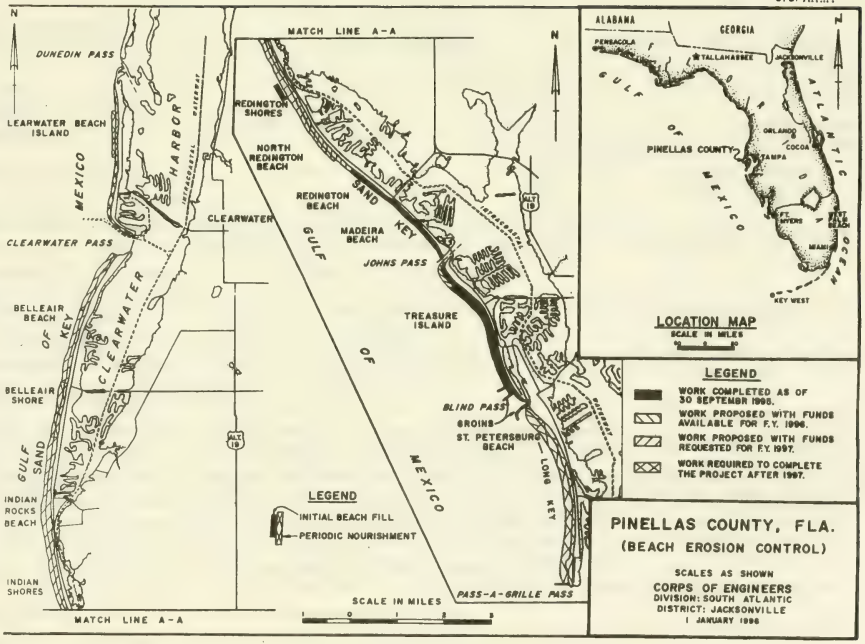
TOTAL BENEFIT-COST RATIO: 7.6 to 1.0 at 8 percent.

Separable Element - Long Key

Estimated Federal Cost		22,200,000
Estimated Non-Federal Cost		14,700,000
Cash Contributions	14,638,000	
Other Costs	62,000	
Total Estimated Project Cost		36,900,000

REMAINING BENEFIT-REMAINING COST RATIO: 1.8 to 1.0 at 8 percent.

TOTAL BENEFIT-COST RATIO: 1.8 to 1.0 at 8 percent.


N
DUNEDIN PASS
LEARWATER BEACH ISLAND
CLEARWATER PASS
BELLEAIR BEACH
BELLEAIR SHORE
INDIAN ROCKS BEACH
INDIAN SHORES
GULF OF MEXICO
SAND KEY
CLEARWATER HARBOR
INTRACOASTAL WATERWAY
MATCH LINE A-A
REDINGTON SHORES
NORTH REDINGTON BEACH
REDINGTON BEACH
CLEARWATER
MADEIRA BEACH
JOHNS PASS
TREASURE ISLAND
BLIND PASS
GROINS
ST. PETERSBURG BEACH
LONG KEY
PASS-A-GRILLE PASS
LEGEND
INITIAL BEACH FILL
PERIODIC NOURISHMENT
SCALE IN MILES
ALABAMA
GEORGIA
PENSACOLA
TALLAHASSEE
JACKSONVILLE
ATLANTIC OCEAN
ORLANDO
COCOA
PINELLAS COUNTY
TAMPA
FT. MYERS
MIAMI
KEY WEST
LOCATION MAP
SCALE IN MILES
LEGEND
WORK COMPLETED AS OF 30 SEPTEMBR 1995.
WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 1996.
WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 1997.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER 1997.
PINELLAS COUNTY, FLA.
(BEACH EROSION CONTROL)
SCALES AS SHOWN
CORPS OF ENGINEERS
DIVISION: SOUTH ATLANTIC
DISTRICT: JACKSONVILLE
1 JANUARY 1996

1353

APPROPRIATION TITLE: Construction, General - Local Protection Projects (Flood Control)

PROJECT: Carolina Beach and Vicinity, North Carolina (Continuing)

LOCATION: The project is located in New Hanover County, about 15 miles southeast of Wilmington, North Carolina, on the peninsula which separates the lower Cape Fear River from the Atlantic Ocean.

DESCRIPTION: The project consists of two separable elements, the Carolina Beach Portion and Area South of Carolina Beach and provides for construction of a dune with a crown width of 25 feet at elevation 13.5 feet National Geodetic Vertical Datum (NGVD), a berm with a crown width of 50 feet at elevation 10.5 feet NGVD for Carolina Beach and 9 feet NGVD for the Area South, a rock revetment at elevation 10.5 feet NGVD along the northern 2,050 feet fronted by a 130 foot wide berm at elevation 6.5 feet NGVD, and Federal participation in the cost of beach nourishment for a period not to exceed 50 years from year of initial placement. Total length of project is 32,000 feet. A reevaluation report was completed which determined that future nourishment on the Carolina Beach Portion should be continued for 50 years in accordance with the Water Resources Development Act of 1986. All work is programmed.

AUTHORIZATION: Flood Control Act of 1962.

REMAINING BENEFIT - REMAINING COST RATIO: The remaining benefit-remaining cost ratio for the Carolina Beach Portion is not applicable because the initial construction has been completed. The remaining benefit-remaining cost ratio for the Area South of Carolina Beach is 2.4 to 1 at 8-1/4 percent.

TOTAL BENEFIT - COST RATIO: 1.6 to 1 at 8-1/4 percent (Carolina Beach); 1.8 to 1 at 8-1/4 percent (Area South)

INITIAL BENEFIT - COST RATIO: 3.2 to 1 at 3 percent (FY 1965).

BASIS OF BENEFIT - COST RATIO: Benefits for the Carolina Beach portion are based on the December 1992 Section 934 Reevaluation Report at April 1992 price levels. Hurricane damage prevention benefits for the Area South are based on the Design Memorandum Supplement approved in March 1994 at October 1992 price levels.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		$177,580,000
Initial Construction	$ 19,387,000	
Periodic Nourishment	158,193,000	

STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Carolina Beach Portion	37	Being Determined
Area South	1	Being Determined
Entire Project	8	Being Determined

SUMMARIZED FINANCIAL DATA - Continued

				ACCUM. PCT. OF EST. FED. COST
Estimated Non-Federal Cost			$ 97,520,000	
Initial Construction		$ 10,927,000		
Cash Contributions	$10,354,000			
Other Costs	573,000			
Periodic Nourishment		86,593,000		
Cash Contributions	86,186,000			
Other Costs	407,000			
Total Estimated Project Cost			$275,100,000	
Initial Construction		30,314,000		
Future Nourishment		244,786,000		
Allocations to 30 September 1995			$ 14,967,000	
Conference Allowance for FY 1996			3,300,000	
Allocation for FY 1996			2,864,000 1/	
Allocation through FY 1996			17,831,000	10
Allocation Requested for FY 1997			6,533,000	14
Programmed Balance to Complete After FY 1997			153,216,000	
Unprogrammed Balance to Complete After FY 1997			0	

1/Reflects $274,000 assigned as savings and slippage and $162,000 reprogrammed from the project.

PHYSICAL DATA

Carolina Beach Portion:

	Dune	Integral Berm	Stone Revetment	Frontal Berm
Elevation	13.5 feet above NGVD	10.5 feet above NGVD	10.5 feet above NGVD	6.5 feet above NGVD
Crown Width	25 feet	50 feet	-	-
Length	14,000 feet	14,000 feet	2,050 feet	2,050 feet

PHYSICAL DATA - Continued

Area South of Carolina Beach:

	Dune	Integral Berm
Elevation	13.5 feet above NGVD	9 feet above NGVD
Crown Width	25 feet	50 feet
Length	18,000 feet	18,000 feet

JUSTIFICATION: The project will provide improvements for hurricane protection, beach erosion control, and recreation in the urban area of the towns of Carolina Beach and Kure Beach, North Carolina. These areas experienced heavy hurricane flood damages in the hurricanes of 1944, 1954, 1955, and 1958. Hurricane Hazel, the maximum hurricane of record, which occurred in 1954, caused $4,664,000 and $1,218,000 in damages to Carolina Beach and Kure Beach, respectively, based on 1954 price levels. A recurrence of this type hurricane at present price levels (October 1995) and July 1973 development would cause damages of $41,258,000 to Carolina Beach, and $35,727,000 in damages at October 1995 price levels and January 1993 development to Kure Beach. Average annual benefits are as follows:

Annual Benefits	Amount
Hurricane Damage Prevention	$10,159,600
Recreation	482,300
Total	$10,641,900

FISCAL YEAR 1997: The requested amount will be applied as follows:

Complete Initial Nourishment for Area South	$6,312,000
Planning, Engineering and Design for Area South	30,000
Construction Management for Area South	191,000
Total	$6,533,000

1356

NON-FEDERAL COST: Carolina Beach - The actual cost to the town of Carolina Beach, North Carolina, the local sponsor for the Carolina Beach portion, of complying with the requirements of local cooperation for initial construction of the project and the completed future nourishment as set forth in the authorizing legislation was $7,315,000. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below for the remaining future nourishment.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation and Replacement Costs
Provide lands, easements, rights of way, including borrow areas.	$ 407,000	
Pay 35 percent of the first costs and future nourishment allocated to hurricane and storm damage reduction and bear all costs of operation, maintenance and replacement of hurricane and storm damage reduction facilities.	13,398,000	$ 95,000
Total Non-Federal Costs - Future Nourishment	$13,805,000	$ 95,000

Area South of Carolina Beach - In accordance with the cost sharing and financing concepts reflected in the Water Resource Development Act of 1986, the town of Kure Beach, North Carolina, as non-Federal sponsor for the Area South of Carolina Beach, must comply with the requirements listed below.

Provide lands, easements, rights of way, including borrow areas	$ 573,000	
Pay 35 percent of the first costs and future nourishment allocated to hurricane and storm damage reduction and bear all costs of operation, maintenance and replacement of hurricane and storm damage reduction facilities.	75,827,000	$100,000
Total Non-Federal Costs	$ 76,400,000	$100,000

STATUS OF LOCAL COOPERATION: The Town of Carolina Beach has complied with all the terms of local cooperation to date including three increments of periodic nourishment. On 1 November 1983, a local occupancy tax went into effect in New Hanover County. Seventy-five percent of the revenues collected from this tax must be used for beach erosion control. A Section 221 local assurance agreement was not required since the project was under construction prior to 1 January 1972. Since the Reevaluation Report determined that continuation of future nourishment in accordance with Section 934 of the Water Resources Development Act of 1986 is feasible, a Project Cooperation Agreement was executed in July 1994.

STATUS OF LOCAL COOPERATION: - Continued

The North Carolina Department of Water and Air Resources advised in 1968 that local interests were unable to provide their share of non-Federal cash contribution toward construction, and between 1968 and 1974, local interests had not expressed interest in the project or any willingness or ability to comply with local cooperation requirements. As a result, the Area South of Carolina Beach was reclassified to the inactive category. Due to increased development, the Town of Carolina Beach expressed interest in the Wilmington Beach portion of the project and indicated that it would be able to provide the local sponsorship required as stated by a letter dated 18 February 1985. The Area South of Carolina Beach, including Wilmington and Kure Beaches, was reclassified to the active category on 6 June 1985. Kure Beach, which is adjacent to and South of Wilmington Beach, has expressed interest in sponsoring the entire Area South of Carolina Beach, including Wilmington and Kure Beaches, and indicated that it would be able to provide the local sponsorship required as stated by letter dated September 20, 1990. A Project Cooperation Agreement was executed in September 1995.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of $177,580,000 is a decrease of $7,900,000 from the latest estimate ($185,480,000) presented to Congress (FY 1996). This change includes the following items.

Item	Amount
Price Escalation on Construction Features - Carolina Beach Portion	-$ 1,995,000
Price Escalation on Construction Features - Area South	- 5,905,000
Total	-$ 7,900,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A draft Environmental Impact Statement (EIS) was filed with CEQ 15 November 1974. A revised draft EIS was filed on 17 April 1981 and a final EIS was filed on 17 July 1981 for the Carolina Beach Portion. The draft EIS for the Area South of Carolina Beach was filed with EPA in November 1992 and the final was filed in June 1993.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1964 and funds to initiate construction were appropriated in FY 1965. Kure Beach and the adjoining area have experienced considerable erosion since the fall of 1985. An economic reevaluation of the Area South of Carolina Beach was approved by HQUSACE in November 1990 and determined that it is feasible to pursue construction of the Area South. A reevaluation report for continuation of Federal participation in future nourishment for the Carolina Beach portion in accordance with Section 934 of WRDA 1986, was approved in January 1994.

Carolina Beach Portion

SUMMARIZED FINANCIAL DATA FOR PROGRAMMED SEPARABLE ELEMENT:

Estimated Federal Cost			$35,680,000
Initial Construction		$ 6,987,000	
Periodic Nourishment		28,693,000	
Estimated Non-Federal Cost			$21,120,000
Initial Construction		$ 4,227,000	
Cash Contributions	$4,227,000		
Other Costs		0	
Periodic Nourishment		16,893,000	
Cash Contributions	16,486,000		
Other Costs	407,000		
Total Estimated Project Cost			56,800,000
Initial Construction		11,214,000	
Future Nourishment		45,586,000	

REMAINING BENEFIT-REMAINING COST RATIO FOR PROGRAMMED SEPARABLE ELEMENT: Not applicable because the initial construction has been completed.

TOTAL BENEFIT-COST RATIO FOR PROGRAMMED SEPARABLE ELEMENT: 1.6 TO 1 at 8-1/4 percent.

Area South of Carolina Beach

SUMMARIZED FINANCIAL DATA FOR PROGRAMMED SEPARABLE ELEMENT:

Estimated Federal Cost			$141,900,000
Initial Construction		$ 12,400,000	
Periodic Nourishment		129,500,000	
Estimated Non-Federal Cost			76,400,000
Initial Construction		6,700,000	
Cash Contributions	$ 6,127,000		
Other Costs	573,000		

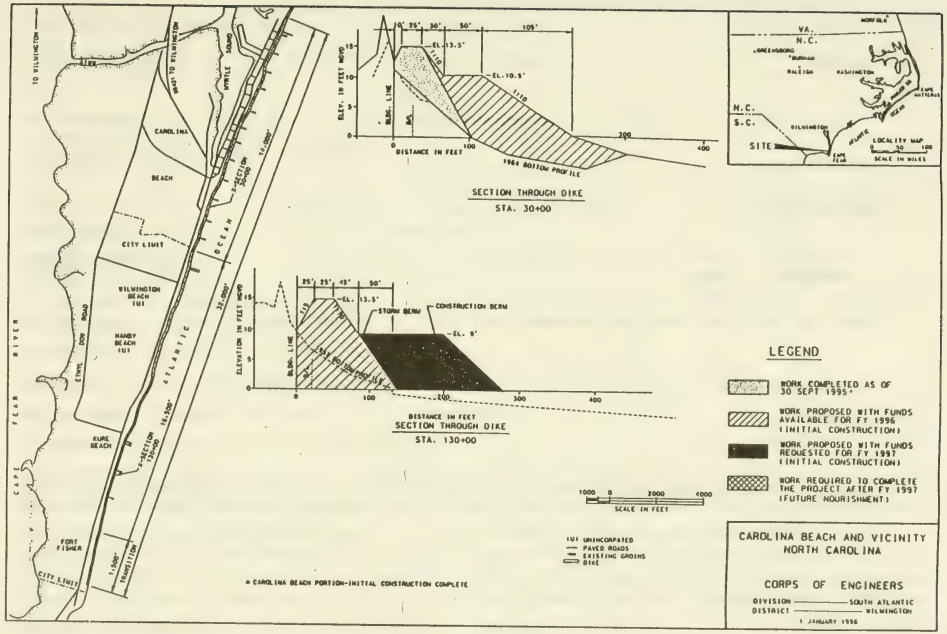
SUMMARIZED FINANCIAL DATA FOR PROGRAMMED SEPARABLE ELEMENT: - Continued

Periodic Nourishment		69,700,000
Cash Contributions	69,700,000	
Other Costs	0	

Total Estimated Project Cost		$218,300,000
Initial Construction	$ 19,100,000	
Future Nourishment	199,200,000	

REMAINING BENEFIT-REMAINING COST RATIO FOR PROGRAMMED SEPARABLE ELEMENT: 2.4 to 1 at 8-1/4 percent.

TOTAL BENEFIT-COST RATIO FOR PROGRAMMED SEPARABLE ELEMENT: 1.8 to 1 at 8-1/4 percent.


TO WILMINGTON
ROAD TO WILMINGTON
WHITE SOUND
CAROLINA
BEACH
CITY LIMIT
WILMINGTON BEACH (U)
MANBY BEACH (U)
EXPL. DPO ROAD
KURE BEACH
FORT FISHER
CITY LIMIT
CAPE FEAR RIVER
ATLANTIC OCEAN
SECTION 30+00
SECTION 130+00
SECTION 230+00
SECTION 330+00
TRANSITION
ELEV. IN FEET NGVD
BLDG. LINE
EL. 13.5'
EL. 10.5'
1:10
1:10
1964 BOTTOM PROFILE
DISTANCE IN FEET
SECTION THROUGH DIKE
STA. 30+00
ELEVATION IN FEET NGVD
STORM BERM
CONSTRUCTION BERM
EL. 9'
1:10
1:10
1:4
1:4
DISTANCE IN FEET
SECTION THROUGH DIKE
STA. 130+00
SCALE IN FEET
(U) UNINCORPATED
PAVED ROADS
EXISTING GROINS
DIKE
* CAROLINA BEACH PORTION-INITIAL CONSTRUCTION COMPLETE
VA.
N.C.
GREENSBORO
DURHAM
RALEIGH
WASHINGTON
NORFOLK
CAPE HATTERAS
N.C.
S.C.
WILMINGTON
SITE
CAPE FEAR
LOCALITY MAP
SCALE IN MILES
LEGEND
WORK COMPLETED AS OF 30 SEPT 1995*
WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1996 (INITIAL CONSTRUCTION)
WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997 (INITIAL CONSTRUCTION)
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997 (FUTURE NOURISHMENT)
CAROLINA BEACH AND VICINITY
NORTH CAROLINA
CORPS OF ENGINEERS
DIVISION — SOUTH ATLANTIC
DISTRICT — WILMINGTON
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Beach Erosion Control

PROJECT: Myrtle Beach, South Carolina (Continuing)

LOCATION: Myrtle Beach is located along the northern coast of South Carolina. The area is commonly referred to as the Grand Strand. The Grand Strand extends from Little River Inlet at the North Carolina border, in a southerly direction, to Murrells Inlet, South Carolina for a total distance of approximately 37 miles. This project includes the developed area along the coast of Horry County, SC, and a portion of the coastal area of Georgetown County, SC. Major municipalities in the project area include the cities of Myrtle Beach and North Myrtle Beach, Garden City, and the Town of Surfside Beach.

DESCRIPTION: The plan of improvement would place about 5.1 million cubic yards of sand over a total project reach of 25.4 miles of beach encompassing three separable reaches. This material will come from four offshore borrow sites. Periodic nourishment will be required once every 8 to 10 years throughout the 50 year project life.

AUTHORIZATION: Water Resources Development Act of 1990.

REMAINING BENEFIT - REMAINING COST RATIO: 7.1 to 1 at 8-1/4 percent.

TOTAL BENEFIT - COST RATIO: 3.7 to 1 at 8-1/4 percent.

INITIAL BENEFIT - COST RATIO: 3.7 to 1 at 8-1/4 percent.

BASIS OF BENEFIT - COST RATIO: Benefits are from the General Design Memorandum dated March 1993 at 1992 price levels.

SUMMARIZED FINANCIAL DATA				STATUS: (1 Jan 1996)	PHYSICAL PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost			140,535,000			
Initial Construction		35,188,000		Initial Construction	4	Being determined
Periodic Nourishment		105,347,000		Future Nourishment	0	Being determined
Estimated Non-Federal Cost			75,672,000	Entire Project	1	Being determined
Initial Construction		18,947,000				
Cash Contribution	18,241,000					
Other Costs	706,000					

SUMMARIZED FINANCIAL DATA (Continued)

Periodic Nourishment		56,725,000	
Cash Contribution	56,725,000		
Other Costs	0		
Total Estimated Project Cost			216,207,000
Initial Construction		54,135,000	
Periodic Nourishment		162,072,000	

		ACCUM. PCT. OF EST. FED COST
Allocations to 30 September 1995	3,291,000	
Conference Allowance for FY 1996	17,000,000	
Allocation for FY 1996	11,131,000 1/	
Allocations through FY 1996	14,422,000	10
Allocation Requested for FY 1997	13,000,000	9
Programmed Balance to Complete After FY 1997	113,113,000	
Unprogrammed Balance to Complete After FY 1997	0	

1/ Reflects $1,410,000 reduction assigned as savings and slippage and $4,459,000 reprogrammed from the project.

PHYSICAL DATA

	Berm Elevation	Berm Width	Length
Reach 1 (North Myrtle Beach)	10 ft	20 ft	8.6 miles
Reach 2 (Myrtle Beach)	9 ft	15 ft	9.0 miles
Reach 3 (Garden City/Surfside)	7 ft	10 ft	7.7 miles

Initial Beach Fill - 5,135,000 cubic yards
Periodic Nourishment - 6,150,000 cubic yards

JUSTIFICATION: The project area has experienced severe beach erosion and heavy property damage as a result of storm surges from hurricanes and northeasters in recent years. The Myrtle Beach area currently experiences shoreline erosion at a rate of approximately 1 foot per year. The project is located in a major tourist area and is a vital economic resource for the State. This area accounts for approximately 38 percent of South Carolina's total revenue from travel and tourism. The value of front row coastal development for the 37 mile area is estimated to be in excess of $1.4 billion. Based on conditions without the proposed project and historical erosion rates, the average annual equivalent damages to 1,400 structures is estimated to be $21,070,000. Average annual benefits are as follows:

Annual Benefits	Amount
Hurricane & Storm Damage Reduction	15,530,000
Recreation	4,317,000
Total	19,847,000

FISCAL YEAR 1997: The total program amount will be applied as follows:

Construction	$12,375,000
Engineering and Design	0
Construction Management	625,000
Total	$13,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation and Replacement Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas, after reductions for such credit have been made in the required cash payments.	706,000	

NON-FEDERAL COST (Continued)

	Payments During Construction and	Annual Operation, Maintenance, Repair Rehabilitation and Replacement
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	700,000	
Pay 35 percent of the costs allocated to hurricane and storm damage reduction, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of hurricane and storm damage reduction facilities.	74,266,000	7,000 per reach
Total Non-Federal Costs	$ 75,672,000	$ 21,000

The non-Federal sponsors have also agreed to make all required payments concurrently with project construction.

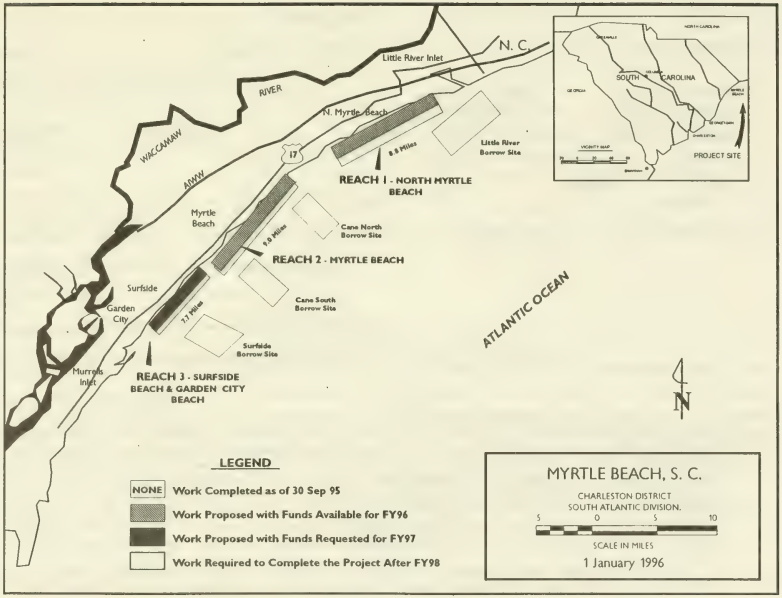
STATUS OF LOCAL COOPERATION: This project has three non-Federal sponsors, one for each reach. The non-Federal sponsor for Reach 1 is the City of North Myrtle Beach. The non-Federal sponsor for Reach 2 is the City of Myrtle Beach. Reach 3 lies within the jurisdictional boundaries of Georgetown County, Horry County, and the Town of Surfside Beach. Horry County has agreed to be the non-Federal sponsor for Reach 3; they plan to enter into a separate agreement with Georgetown County and the Town of Surfside Beach for the cost sharing of their respective portions. As of this date, all three sponsors have been setting aside funds provided from the state accommodations tax revenues. The state receives 2 percent of every $1.00 charged for motel accommodations. These funds will cover a major portion of the non-Federal funds for this project. However, the State of South Carolina provided 50% of the non-federal funds by use of appropriated funds in July 1995. Our analysis of the non-Federal sponsors' financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment. Two Project Cooperation Agreements have been executed to date (Reach 1 - June 1995, Reach 2 - Aug 1995) and the third Project Cooperation Agreement is scheduled for execution in March 1996.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $140,535,000 is a decrease of $20,016,000 from the latest cost estimate of $160,551,000 presented to Congress (FY 1996). This change is includes the following:

Item	Amount
Price Escalation on Construction Features	$(20,016,000)
Total	$(20,016,000)

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS was filed with EPA in July 1993.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1990. Funds to initiate construction were appropriated in Fiscal Year 1995.


N. C.
Little River Inlet
RIVER
WACCAMAW
AIWW
N. Myrtle Beach
17
8.5 Miles
Little River Borrow Site
REACH 1 - NORTH MYRTLE BEACH
Myrtle Beach
9.0 Miles
Cane North Borrow Site
REACH 2 - MYRTLE BEACH
Surfside
Garden City
7.1 Miles
Cane South Borrow Site
Surfside Borrow Site
Murrells Inlet
REACH 3 - SURFSIDE BEACH & GARDEN CITY BEACH
ATLANTIC OCEAN
N
LEGEND
NONE Work Completed as of 30 Sep 95
Work Proposed with Funds Available for FY96
Work Proposed with Funds Requested for FY97
Work Required to Complete the Project After FY98
MYRTLE BEACH, S. C.
CHARLESTON DISTRICT
SOUTH ATLANTIC DIVISION.
5 0 5 10
SCALE IN MILES
1 January 1996
SOUTH CAROLINA
PROJECT SITE

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Central and Southern Florida, Florida (Continuing)

LOCATION: The project is located in the southeasterly 18 counties of the State of Florida. Principle areas are the Upper St. Johns River Basin, Kissimmee River Basin, Lake Okeechobee-Everglades Area, and East Coast-Everglades Area.

DESCRIPTION: The Central and Southern Florida Project involves an area of about 16,000 square miles, which includes all or part of 18 counties in central and southern Florida. It embraces Lake Okeechobee, its regulatory outlets, the Florida Everglades, the Upper St. Johns and Kissimmee River Basins, and the lower east coast of Florida. Project purposes are flood control; municipal, industrial, and agricultural water supply; prevention of salt water intrusion, water supply for Everglades National Park; fish and wildlife preservation; navigation; and recreation. In addition to completed work, portions of the Upper St. Johns River, South Dade County, Port Mayaca Recreation, Kissimmee Basin, West Palm Beach Canal, Agricultural Area, Lake Okeechobee, East Cape and Homestead Canals, Manatee Pass-Through Gates, North Dade County, and the Central & Southern Florida Project Review separable elements are currently programmed; all remaining separable elements are unprogrammed. Modified Water Deliveries to Everglades National Park will be accomplished with funds transferred to the Corps of Engineers by the National Park Service.

AUTHORIZATION: Flood Control Acts of 1948, 1954, 1960, 1962, 1965, and 1968; Authorization in 1970 under Section 201 of the Flood Control Act of 1965, and the Water Resources Development Acts of 1986, 1988, 1990, and 1992.

REMAINING BENEFIT - REMAINING COST RATIO: 4.0 to 1 at 2 1/2 percent.

TOTAL BENEFIT - COST RATIO: 4.8 to 1 at 2 1/2 percent.

INITIAL BENEFIT - COST RATIO: 2.1 to 1 at 2 1/2 percent (FY 1950).

BASIS OF BENEFIT - COST RATIO: Benefits are a composite of the latest benefits available from the individual reports of the separable elements of the total project.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost (Corps)		1,366,000,000		Misc Completed Wks	100	Oct 1992
Programmed Construction	516,237,000			Upper St. Johns Riv	62	Being determined
Unprogrammed Construction	849,763,000			Port Mayaca Rec	0	Being determined
				South Dade County	28	Being determined
Estimated Federal Cost (DOI)		51,000,000		Entire Project	77	Being determined
Programmed Construction	51,000,000					

Division: South Atlantic District: Jacksonville Central and Southern Florida, FL

SUMMARIZED FINANCIAL DATA (Continued)

Estimated Non-Federal Cost			680,000,000
Programmed Construction		276,552,000	
Cash Contributions	90,725,000		
Other Costs	185,827,000		
Estimated Non-Federal Cost			
Unprogrammed Construction		403,448,000	
Cash Contributions	210,739,000		
Other Costs	192,709,000		

Total Estimated Programmed Construction Cost	833,789,000
Total Estimated Unprogrammed Construction Cost	1,253,211,000
Total Estimated Project Cost	2,097,000,000

Estimated Appropriation Requirement	1,366,000,000	
Allocations to 30 September 1995	412,880,000	
Conference Allowance for FY 1996	4,026,000	
Allocation for FY 1996	2,292,000 2/	
Allocations through FY 1996	415,172,000	31
Allocation Requested for FY 1997	17,237,000	33
Programmed Balance to Complete after FY 1997	83,828,000	
Unprogrammed Balance to Complete after FY 1997	849,763,000	

1/ Local interests have also expended over $1,000,000 on emergency construction and are progressively providing necessary secondary work.
2/ Reflects $334,000 reduction assigned as savings and slippage and $1,400,000 reprogrammed from the project.

PHYSICAL DATA

Lands and Damages	
The 1968 authorization included lands for recreational areas.	
Pumping Plants (Number)	35
Capacity (Gallons per Minute)	20,780,080
Floodway Control & Diversion Structures (Number)	235
Relocations-Highways (Bridges)	2
Relocations-Railroads (Bridges)	56
Locks (Number)	25
Length (Feet)	60 to 400
Width (Feet)	20 to 56
Canals (Miles)	977
Levees (Miles)	1,008
Minimum to Maximum Height (Feet)	2 to 30

JUSTIFICATION: The Central and Southern Florida project was originally authorized and designed as a flood control project in response to the maximum flood of record in 1947. Existing damages, without the project, were $59,693,000 ($366,903,000 at 1 October 1989 price levels). The 1947 flood frequency averages 1 in 25 years over the project area, with an average duration of 70 days. Minor floods occur almost yearly in the project area and major floods occur frequently. This situation is aggravated by wet antecedent conditions followed by heavy seasonal rainfall. The average degree of protection provided by the completed project is about a 10-year flood frequency protection. Approximately 2,853,700 acres are protected. This encompasses 2,765,100 agricultural acres and 88,600 urban acres. The present value of property subject to flood damages is about $12.3 billion. Property types include residential, commercial, industrial, public, and agricultural.

Average annual damages without the project would be $110,580,000 and $22,536,000 with the project. Damages attributable to urban property are 16.7 percent and 83.3 percent are attributable to rural property. The proportion of average annual damages prevented are 36.8 percent to existing development and 63.2 percent to future development. Flood damages incurred since project authorization through March, 1987 total $306,370,000; damages prevented by project works in place at times of flood total $474,793,000 and damages with no project works would have totaled $781,163,000.

Under Public Law 90-483 (River and Harbor Act of 1968), additional project features for the purpose of water supply were added to the Central and Southern Florida project. The storage capacity of the entire project is 2,953,000 average annual acre-feet divided into approximately 1,600,000 acre-feet for urban use by 2020 and 740,000 acre-feet for agricultural use by 2020. The Everglades National Park receives virtually its entire source of water (other than direct rainfall) from the Central and Southern Florida Project. The pumping rate for irrigation of 590 square miles would yield approximately 917,850 acre-feet per year for agricultural use. Recurrent drought conditions with resultant low flows require supplemental irrigation to ensure adequate crop yields. Average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	235,213,000
Municipal and Industrial Water Supply	25,664,000
Agricultural Water Supply	27,614,000
Recreation	11,109,000
Fish and Wildlife	238,000
Area Redevelopment	3,012,000
Total	302,850,000

Public Law 90-483 in addition to Public Law 101-229 (Everglades National Park Protection and Expansion Act) have authorized modifications to the project for environmental restoration in the C-111 basin. The South Dade County effort will restore natural hydrologic conditions in Taylor Slough within Everglades National Park for the purpose of restoring the historic diversity and abundance of the native flora and fauna.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue construction of channels, canals, and pumping plants for South Dade County	6,437,000
Continue construction of channels, canals, levees, floodwalls, and flood control structures for Upper St. Johns River Basin	455,000
Continue construction of recreational facilities for Upper St. Johns River Basin	1,008,000
Continue the feasibility phase of the Central and Southern Florida Project Review Study	2,000,000
Planning, Engineering and Design for South Dade County	3,213,000
Planning, Engineering and Design for Upper St. Johns River Basin	4,000
Planning, Engineering and Design for West Palm Beach Canal	1,197,000
Planning, Engineering and Design for Kissimmee Basin	210,000
Planning, Engineering and Design for Port Mayaca Recreation .	29,000
Planning, Engineering and Design for Manatee Pass-Through Gates	1,135,000
Planning, Engineering and Design for Agricultural Area (Bolles & Cross)	200,000
Planning, Engineering and Design for Lake Okeechobee (Regulation Review Schedule)	200,000
Planning, Engineering and Design for East Cape & Homestead Canals	399,000
Planning, Engineering and Design for North Dade County	300,000
Construction Management	450,000
Total	$17,237,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the authorizing legislation and the Water Resources Development Act of 1986, as applicable, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Annual Operation, Payments During Construction and Reimbursements	Maintenance, Repair, Rehabilitation, and Replacement Costs
Upper St. Johns River Basin		
Provide lands, easements, rights of way, and dredged material disposal areas.	86,232,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	11,060,000	

1371

NON-FEDERAL COST (Continued)		
Pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of recreation facilities.	3,602,000	82,000
Total	100,894,000	82,000
South Dade County		
Provide lands, easements, rights of way, and dredged material disposal areas.	55,461,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	796,000	
Pay 20 percent of the cost of the project assigned to flood control and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities.	14,981,000	845,000
Total	71,238,000	845,000
Completed Works		
Provide lands, easements, rights of way, and modify or relocate buildings, utilities, roads, bridges and other facilities.	32,278,000	
Cash Contribution	72,142,000	
Total	104,420,000	
Total Non-Federal First Cost	276,552,000	1,001,000

STATUS OF LOCAL COOPERATION: Assurances of local cooperation have been accepted from the local sponsor, the South Florida Water Management District, for all works authorized under the Central and Southern Florida project except for the Upper St. Johns River portion of the project. Local interests voluntarily executed a supplemental assurances contract which was approved by the District Engineer on 1 July 1972 for all modifications to the project. Assurances of local cooperation were accepted from the St. Johns River Water Management District for the Upper St. Johns River portion on 30 December 1987. The Project Cooperation Agreement for the South Dade County separable element was executed with the South Florida Water Management District in January 1995.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of $1,366,000,000 is an increase of $8,000,000 over the latest estimate ($1,358,000,000) submitted to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	3,000,000
Authorized Modifications	5,000,000
Total	$8,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The latest Environmental Impact Statement for the project was for the South Dade County separable element and was filed with the Environmental Protection Agency in July 1994.

OTHER INFORMATION: Funds to initiate preconstruction planning and construction were appropriated in FY 1950. The Everglades National Park Protection and Expansion Act, signed 13 December 1989, authorizes construction of structural works required for improved water deliveries to Shark River Slough in Everglades National Park, construction of flood protection works for the residential area in the East Everglades, and acquisition of 107,600 acres of privately owned wetlands in the East Everglades. The Department of the Interior and the State of Florida would acquire the land and the Secretary of the Army would construct all project modifications with funds transferred to the Corps of Engineers by the National Park Service for this purpose. All Federal funding for implementation of this project is being appropriated through the Department of Interior appropriations and transfers are made to the Corps of Engineers as needed for modifications to the Central and Southern Florida project. This authorization also included modification of the South Dade County separable element to improve the natural resources in Taylor Slough in Everglades National Park and was funded through the Corps Central and Southern Florida project appropriation.

The Kissimmee Restoration Project was authorized by the Water Resources Development Act of 1992. It is being funded by a separate appropriation. The project cooperation agreement was executed in March 1994. Preconstruction, engineering, and design is underway, and construction will be initiated in Fiscal Year 1997.

OTHER INFORMATION (Continued)

The Water Resources Development Act of 1992 authorizes the Chief of Engineers to review the Central and Southern Florida project to determine whether modifications to the existing project are advisable at the present time due to significantly changed physical, biological, demographic, or economic conditions, with particular reference to modifying the project or its operation for improving the quality of the environment, improving protection of the aquifer, and improving the integrity, capability, and conservation of urban water supplies affected by the project or its operation. The central organizing theme of the study is restoration of the Everglades ecosystem while accommodating other demands for water and related land resources in south Florida. Recognizing the complexity of ecological restoration and the extensive interaction between the ecosystem and other uses of water and related land resources, oversight of the reconnaissance study was provided by a Washington level Task Force, which will continue to provide policy guidance, study coordination, and appropriate agency participation. The Task Force is composed of representatives from USDA, DOI, EPA, DOJ, DOD, and NOAA. The Reconnaissance Report was submitted on 30 November 1994 and was approved in January 1995 contingent upon completion of the Project Study Plan for the feasibility phase. The plan of study for the feasibility phase is being coordinated with the South Florida Water Management District.

In Fiscal Year 1994, preconstruction, engineering, and design work was initiated on three congressional adds: East Cape and Homestead Canals, Manatee Pass-Through Gates, and HTW Cleanup of C-103S. The Manatee Pass-Through Gates Study is evaluating potential methods for preventing Manatee deaths associated with operation of existing structures and locks. Part 1 of the report was submitted to higher authority in October 1995. The East Cape and Homestead Canals project will prevent salt water intrusion into fresh water bays in Everglades National Park by repairing the plugs in the two canals. A memorandum of understanding for this work has been developed with the Everglades National Park Service. The HTW Cleanup of C-103S effort evaluated the extent of the soil contamination at the Homestead power plant and the Corps' authority for cleanup. It was concluded that the Corps has no authority to participate in the cleanup. The City of Homestead is taking appropriate corrective actions.

SUMMARIZED FINANCIAL DATA FOR PROGRAMMED SEPARABLE ELEMENTS:

Upper St. Johns River Basin

Estimated Federal Cost		81,724,000
Programmed Construction	77,478,000	
Unprogrammed Construction	4,246,000	
Estimated Non-Federal Cost		100,894,000
Programmed Construction	100,894,000	
Cash Contributions	3,602,000	
Other Costs	97,292,000	
Estimated Non-Federal Cost		
Unprogrammed Construction	0	
Cash Contributions	0	
Other Costs	0	
Total Estimated Programmed Construction Cost		178,372,000
Total Estimated Unprogrammed Construction Cost		4,246,000
Total Estimated Project Cost		182,618,000

REMAINING BENEFIT-REMAINING COST RATIO: 2.7 to 1 at 8 5/8 percent.

TOTAL BENEFIT-COST RATIO: 3.0 to 1 at 8 5/8 percent.

South Dade County

Estimated Federal Cost		85,207,000
Programmed Construction	84,949,000	
Unprogrammed Construction	258,000	
Estimated Non-Federal Cost		71,238,000
Programmed Construction	71,004,000	
Cash Contributions	14,747,000	
Other Costs	56,257,000	
Estimated Non-Federal Cost		

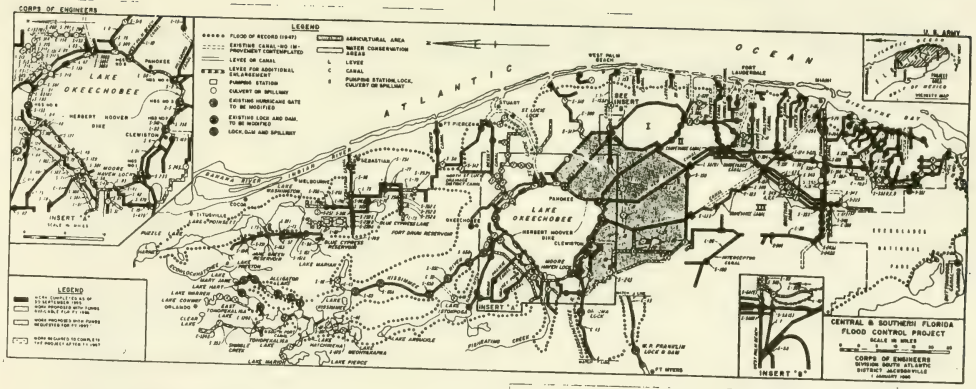
23-577 96 – 44

Unprogrammed Construction		234,000
Cash Contributions	234,000	
Other Costs	0	

Total Estimated Programmed Construction Cost	155,953,000
Total Estimated Unprogrammed Construction Cost	492,000
Total Estimated Project Cost	156,445,000

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable

TOTAL BENEFIT-COST RATIO: Not applicable


CORPS OF ENGINEERS
LEGEND
FLOOD OF RECORD (1947)
EXISTING CANAL-NO IMPROVEMENT CONTEMPLATED
LEVEE OR CANAL
LEVEE FOR ADDITIONAL ENLARGEMENT
PUMPING STATION
CULVERT OR SPILLWAY
EXISTING HURRICANE GATE TO BE MODIFIED
EXISTING LOCK AND DAM, TO BE MODIFIED
LOCK, DAM AND SPILLWAY
AGRICULTURAL AREA
WATER CONSERVATION AREAS
L LEVEE
C CANAL
S PURPOSE STATION, LOCK, CULVERT OR SPILLWAY
ATLANTIC OCEAN
LAKE OKEECHOBEE
HERBERT HOOVER DIKE
CLEWISTON
PAHOKEE
INSERT "A"
INSERT "B"
INSERT "C"
FORT PIERCE
VERO BEACH
WEST PALM BEACH
FORT LAUDERDALE
MIAMI
BISCAYNE BAY
EVERGLADES NATIONAL PARK
U.S. ARMY
CENTRAL & SOUTHERN FLORIDA
FLOOD CONTROL PROJECT
SCALE IN MILES
CORPS OF ENGINEERS
DIVISION SOUTH ATLANTIC
DISTRICT JACKSONVILLE

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Four River Basins, Florida (Continuing)

LOCATION: The project area covers about 6,000 square miles within 15 counties in central and southwest peninsular Florida. The area is bounded on the north by the alignment of the Cross-Florida Barge Canal; on the east by the St. Johns River, Kissimmee River, and Fisheating Creek Basins; on the south by the Caloosahatchee River Basin; and on the west by the Gulf of Mexico, Myakka and Alafia River Basins, and other minor Gulf coastal basins. The project includes all or part of four main stream basins, the Hillsborough, Oklawaha, Withlacoochee, and Peace Rivers, and all of three smaller coastal basins north of Tampa, Florida, drained by the Pithlachascotee and Anclote Rivers, and Lake Tarpon.

DESCRIPTION: The flood control project has a design purpose of detention of flood waters through 113 miles of canals, 81 miles of levees, and 39 floodway control and diversion structures. The only work currently programmed is recreation along the Hillsborough Bypass Canal.

AUTHORIZATION: Flood Control Act of 1962

REMAINING BENEFIT - REMAINING COST RATIO: 1.2 to 1 at 7 3/4 percent.

TOTAL BENEFIT - COST RATIO: 1.1 to 1 at 3 1/8 percent.

INITIAL BENEFIT - COST RATIO: 1.6 to 1 at 3 1/8 percent (FY 1966).

BASIS OF BENEFIT - COST RATIO: Benefits are from approved reports for various components of the project.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost			$ 181,000,000
Programmed Construction		$ 74,387,000	
Unprogrammed Construction		106,613,000	
Estimated Non-Federal Cost			155,500,000
Programmed Construction		55,883,000	
Cash Contributions	$ 16,541,000		
Other Cost	39,342,000		
Estimated Non-Federal Cost			
Unprogrammed Construction		99,617,000	
Cash Contributions	21,741,000		
Other Costs	77,876,000		

STATUS (1 Jan 1994)	PERCENT COMPLETE	COMPLETION SCHEDULE
Relocations - RR Bridges	100	Sep 1978
Channels and Canals	100	Apr 1986
Levees and Floodwalls	100	Mar 1981
Recreation	70	Being determined
Floodway Control and Diversion Structure	100	Mar 1983
Buildings, Grounds and Utilities	100	Aug 1978
Entire Project	98	Being determined

		ACCUM. PCT. OF EST. FED. COST
Total Estimated Programmed Construction Cost	130,270,000	
Total Estimated Unprogrammed Construction Cost	206,230,000	
Total Estimated Project Cost	$ 336,500,000	
Allocations to 30 September 1995	$ 72,585,000	
Conference Allowance for FY 1996	0	
Allocation for FY 1996	0	40
Allocations through FY 1996	72,585,000	41
Allocation Requested for FY 1997	580,000	
Programmed Balance to Complete After FY 1997	1,222,000	
Unprogrammed Balance to Complete After FY 1997	106,613,000	

PHYSICAL DATA

Relocations - Railroads (Bridges)	11
Levees - Total Length (Miles)	81
Minimum to Maximum Height (feet)	10 to 17
Canals - Miles	113
Floodway Control and Diversion Structures (Number)	39

JUSTIFICATION: The Four River Basins project maximum flood of record occurred in March 1960. Damages, without the project, were $13,441,000 ($51,083,000 at 1989 price levels). The 1960 flood frequency averaged 1 in 25 years over the project area, with an average duration of 28 days and a range from 7 days in the Gulf Coastal area to 60 days in the Oklawaha River Basin. Damaging floods occur almost yearly. In June 1974, a heavy rainfall, following wet conditions, resulted in substantial flood damages of $5,862,000 (1974 price levels). Existing project works prevented an estimated $7,572,000 (1974 price levels) in flood damages. The completed project would have prevented all flood damages. In May 1979, heavy rainfall resulted in flood damages of $18,364,300 (1979 price levels). Existing project works prevented an estimated $22,882,000 (1979 price levels). The completed project would have prevented $29,886,000 (1979 price levels). Flat terrain and inadequate natural drainage cause long-term retention of heavy rainfalls and result in frequent flooding throughout the project area.

The average degree of protection provided by the completed project will be a 10 year flood frequency with a 200 year flood frequency for Tampa. Upon completion, 490,820 acres will be protected. This encompasses 489,180 agricultural acres and 1,640 urban acres. Present value of property subject to flood damages is about $316,230,000 (1989 price levels). Property types include residential, commercial, industrial, mining and agricultural. Average annual flood damages without the project would be $13,642,300 (1989 price levels) and $2,273,400 (1989 price levels) with the project. Damages attributable without the project are 44.6 percent to urban property and 55.4 percent to rural property.

The proportions of average annual damages prevented are 62.1 percent attributable to existing development and 37.9 percent to future development. Average annual benefits are as follows:

Item	Amount
Flood Control	$ 14,507,000
Fish and Wildlife	388,000
Recreation	5,462,000
Area Redevelopment	1,428,000
Total	$ 21,785,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate construction of recreation facilities at Platwoods Site Phase II	$ 580,000
Total	$ 580,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the authorizing legislation, the non-Federal sponsor must comply with the requirements listed below for programmed work.

Requirements of Local Cooperation	Payments During Construction, and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 24,938,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	14,404,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	5,559,000	$ 509,700
Pay 17 percent of the first costs, except engineering and design, allocated to flood control, and bear all cost of operation, maintenance, and replacement of flood control facilities.	10,982,000	
Total non-Federal payments during construction.	$ 55,883,000	$ 509,700

All separable elements initiated in the future will be formulated consistent with the cost sharing and financing concepts as reflected in the Water Resources Development Act of 1986. Local interests are required to operate and maintain the project upon completion.

STATUS OF LOCAL COOPERATION: Assurances of local cooperation from Southwest Florida Water Management District were accepted by the Federal Government on 12 November 1963. Supplemental assurances were accepted on 14 January 1972 in compliance with

Public Law 91-646. Construction of this project was underway as of 1 January 1972; therefore, a Local Assurances Agreement required by Section 221 of the River and Harbor and Flood Control Act of 1970 (PL 91-611) was not necessary, but local interests voluntarily executed a supplemental assurances contract which was accepted by the District Engineer on 14 January 1972. The Southwest Florida Water Management District has furnished a resolution declaring its intention to participate in the development of recreational facilities for the entire Four River Basins project, pursuant to the Federal Water Project Act of 1965, including entering into specific agreements for recreational purposes. A final agreement was executed on 20 April 1982. A portion of the Four River Basins project known as Oklawaha River Basin is under the jurisdiction of the St. Johns River Water Management District. A Section 221 contract for local cooperation with the District was signed by the Secretary of the Army on 9 December 1976 and became effective on 31 December 1976.

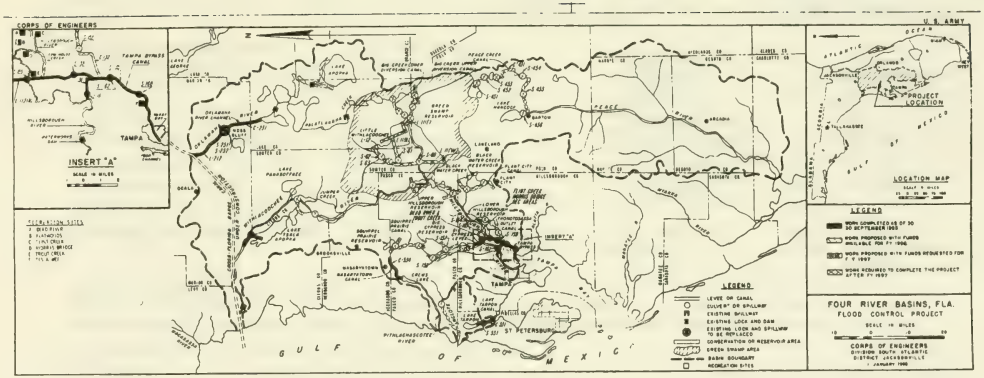
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of $181,000,000 is an increase of 5,900,000 over the latest estimate ($175,100,000) presented to Congress (FY 1995). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 5,900,000
Total	$ 5,900,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement for C-135 and the Lower Hillsborough Basin was filed with CEQ on 8 November 1974.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1965. Funds to initiate construction were appropriated in Fiscal Year 1966.

A Florida law changed the boundary of the Southwest Florida Water Management District, effective on 1 January 1977, and assigned that portion of the Four River Basins project comprising the Oklawaha River Basin to the jurisdiction of the newly established St. Johns River Water Management District. Studies indicated the need for additional recreation facilities, particularly for the Lower Hillsborough portion of the project. A postauthorization change report for Lower Hillsborough Flood Detention Area and related areas, to cover substantial increases in recreational benefits and cost, was approved on 12 May 1978.


CORPS OF ENGINEERS
U. S. ARMY
INSERT "A"
SCALE IN MILES
TAMPA
ST. PETERSBURG
GULF OF MEXICO
LEGEND
LEVEE OR CANAL
DULIKER OR SPILLWAY
EXISTING SPILLWAY
EXISTING LOCK AND DAM
EXISTING LOCK AND SPILLWAY TO BE REPLACED
CONSERVATION OR RESERVOIR AREA
GREEN SWAMP AREA
BASIN BOUNDARY
RECREATION SITES
PROJECT LOCATION
LOCATION MAP
WORK COMPLETED AS OF 30 SEPTEMBER 1965
WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1966
WORK PROPOSED WITH FUNDS REQUESTED FOR F Y 1967
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1967
FOUR RIVER BASINS, FLA.
FLOOD CONTROL PROJECT
CORPS OF ENGINEERS
DIVISION SOUTH ATLANTIC
DISTRICT JACKSONVILLE
JANUARY 1966

1883

APPROPRIATION TITLE: Construction, General - Local Protection Projects (Flood Control)

PROJECT: Portugues and Bucana Rivers, Puerto Rico (Continuing)

LOCATION: The improvements are in and near Ponce on the Portugues and Bucana Rivers on the south coast of Puerto Rico.

DESCRIPTION: The project provides for two multiple-purpose reservoirs for flood control, water supply, general recreation, and fish and wildlife enhancement; enlargement of 5.7 miles of Bucana River and 2 miles of Portugues River; a 1.3 mile diversion channel connecting the Portugues River to lower Bucana River; and debris basins at the Bucana and Portugues Rivers. All work is programmed except the water supply increment of Portugues Dam.

AUTHORIZATION: Flood Control Act of 1970 and Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 6.8 to 1 at 7 3/4 percent.

TOTAL BENEFIT - COST RATIO: 1.4 to 1 at 5 5/8 percent.

INITIAL BENEFIT - COST RATIO: 1.6 to 1 at 5 5/8 percent (FY 1975).

BASIS OF BENEFIT - COST RATIO: Benefits are from the July 1973 Design Memorandum Phase 1, Plan Formulation and Site Selection Report at July 1973 prices levels except for Portugues Dam where benefits are from the March 1990 Economic Reanalysis Report at January 1990 price levels.

SUMMARIZED FINANCIAL DATA		ACCUM PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Total Appropriation Requirement	416,500,000		Channels and Canals		
Programmed Construction	420,880,000		Lower Channels	100	Aug 1978
Unprogrammed Construction	(4,380,000)		Upper Bucana Chl	100	Jun 1983
			Upper Portugues Chl	95	Aug 1997
Future Non-Federal Reimbursement	66,360,000		Bucana River Debris	100	Jun 1987
Programmed Construction	66,360,000		Portugues Debris	70	Feb 1996
Unprogrammed Construction	0		Dams		
			Cerrillos	100	Sep 1994
Estimated Federal Cost (Ultimate)	350,140,000		Portugues (FC)	0	Being determined
Programmed Construction	353,720,000		Portugues (WS)	0	Unprogrammed
Unprogrammed Construction	(4,380,000)				

SUMMARIZED FINANCIAL DATA (Continued)

			ACCUM PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Non-Federal Cost		143,100,000		Recreation		
Programmed Construction	118,080,000			Channels	45	Aug 1996
Cash Contributions	23,366,000			Cerrillos	0	Feb 1997
Other Costs	94,714,000			Portugues	0	Being determined
				Entire Project	79	Being determined
Unprogrammed Construction	25,020,000					
Cash Contribution	25,020,000					
Other Costs	0					
Reimbursement	0					
Total Estimated Programmed Construction Cost		538,960,000				
Total Estimated Unprogrammed Construction Cost		20,640,000				
Total Estimated Project Cost		559,600,000				
Allocations to 30 September 1995		343,514,000				
Conference Allowance for FY 1996		12,451,000				
Allocation for FY 1996		8,545,000 1/				
Allocations through FY 1996		352,059,000	63			
Allocation Requested for FY 1997		7,500,000	65			
Programmed Balance to Complete After FY 1997		61,321,000				
Unprogrammed Balance to Complete After FY 1997		(4,380,000)				

1/ Reflects $1,032,000 assigned as savings and slippage and $1,842,000 reprogrammed from the project.

PHYSICAL DATA

	Portugues River	Cerrillos River
Dam		
Type	Concrete arch	Earth and rock-filled
Height	272 feet	323 feet
Crest Length	1,500 feet	1,555 feet
Spillway Type	Ungated concrete ogee 150 feet wide	Ungated rock cut 400 feet wide
Reservoir Capacity (Acre-Feet)		
Flood Control	8,342	17,065
Water Supply	14,000	25,200
Sediment	2,841	5,635
Total	25,183	47,900
Portugues River Channel Enlargement		2.1 miles
Bucana River Channel Enlargement		5.7 miles
Diversion Channel connecting Portugues River to the Lower Bucana River		1.3 miles

JUSTIFICATION: The mountainous terrain above Ponce permits rapid runoff into the rivers which overflow in the lower elevation flood plains in Ponce causing loss of life and extensive property damage. The 1954 flood caused damages of $1,297,000 ($6,991,000 at 1989 price levels). Minor flooding occurs almost yearly and major floods occur every 5 years on the average. Other major damaging floods occurred in 1961 ($4,931,000 at 1989 price levels), 1970 ($2,176,000 at 1989 price levels), 1975 ($35,253,000 at 1989 price levels), and 1985 ($33,517,000 at 1989 price levels). The average degree of protection provided by the completed project will be the standard project flood frequency. Upon completion, 6,415 acres will be protected, including 4,310 agricultural acres, 1,855 urban acres, and 250 acres which are undeveloped. Present value of property subject to flood damages is $624,069,000. Average annual flood damages prevented are all attributable to existing urban development. Water supply is also a need that will be met by the Portugues and Bucana Rivers project. The water storage capacity in Lake Cerrillos is 25,200 acre-feet while ongoing studies have established a preliminary capacity for Lake Portugues of 14,000 acre-feet. Primary uses of the water supply will be municipal and industrial.

Average annual benefits are as follows:

Item	Amount
Flood Control	43,387,000
Water Supply	13,968,000
Recreation	2,418,000
Area Redevelopment	1,166,000
Total	62,939,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Complete Cerrillos Dam start up and seepage control	$ 846,000
Continue Cerrillos Dam Recreation Construction	1,280,000
Complete Portugues Dam Recreational Lands	69,000
Continue Portugues Dam Excavation	789,000
Continue Portugues Dam Grouting	2,409,000
Initiate Portugues Dam Recreation Construction	100,000
Continue Channels Shoal Removal	1,349,000
Planning, Engineering and Design	95,000
Construction Management	563,000
Total	$ 7,500,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Flood Control Act of 1970 and the Water Resources Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, and rights-of-way.	73,050,000	
Modify or relocate buildings, utilities, roads, bridges, and other facilities, where necessary in the construction of the project.	20,112,000	

NON-FEDERAL COST: (Continued)

Pay additional cash required to bring the total non-Federal share of flood control costs to 25 percent and bear all costs of operation, maintenance, and replacement of flood control facilities.	15,994,000	249,900
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	9,548,000	258,300
Pay all costs allocated to municipal and industrial water supply and bear all costs of operation, maintenance, and replacement of municipal and industrial water supply facilities.	24,396,000	85,700
Total	143,100,000	593,900

STATUS OF LOCAL COOPERATION: The Commonwealth of Puerto Rico Department of Natural and Environmental Resources is the local sponsor. The following contract agreements are required pursuant to Section 221 of the River and Harbor and Flood Control Act of 1970 and the Water Resources Development Act of 1986:

Contract		Actual or Anticipated Execution Date
Section 221 -	Cerrillos Reservoir	15 March 1982
	Channels	22 July 1974
Water Supply -	Cerrillos Reservoir	15 March 1982
Recreation -	Cerrillos Reservoir	15 March 1982
	Channels	24 June 1987
Project Cooperation Agreement -	Portugues Reservoir	9 Aug 1993

Portugues Dam is a concrete elliptical arch dam, curved in both the vertical and horizontal planes. The dam is designed as a multi-purpose dam to be constructed in two phases. The Commonwealth of Puerto Rico has requested that the dam be constructed as soon as possible for flood control and recreation, but to defer the water supply feature to a later date. By letter dated 15 November 1991, the Commonwealth restated their commitment to the full and complete multi-purpose Portugues Dam, and agreed to pay the additional costs required for the phased construction.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of $416,500,000 is an increase of $800,000 over the latest estimate ($415,700,000) presented to Congress (FY 1996). This change includes the following.

Item	Amount
Price Escalation on Construction Features	(1,256,000)
Post Contract Award and Other Estimating Adjustments	639,000
Schedule Changes	1,417,000
Total	$ 800,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS was filed with CEQ on 25 February 1974. A Supplemental EIS for the Portugues Dam was submitted in November 1992.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1972. Funds to initiate construction were appropriated in Fiscal Year 1975.

SUMMARIZED FINANCIAL DATA FOR PROGRAMMED SEPARABLE ELEMENTS:

Channels and Canals

Estimated Federal Cost		109,630,000
Estimated Non-Federal Cost		62,070,000
Cash Contributions	3,690,000	
Other Costs	58,380,000	
Total Estimated Project Cost		171,700,000

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because construction is substantially complete.

TOTAL BENEFIT-COST RATIO: 9.1 to 1 at 5 5/8 percent.

Cerrillos Dam

Estimated Total Appropriation Requirement	223,600,000
Future Non-Federal Reimbursement (Water Supply)	66,360,000

Estimated Federal Cost (Ultimate)			157,240,000
Estimated Non-Pederal Cost			27,300,000
Cash Contributions		3,420,000	
Other Costs		23,880,000	
Total Estimated Project Cost			250,900,000

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because construction is substantially complete.

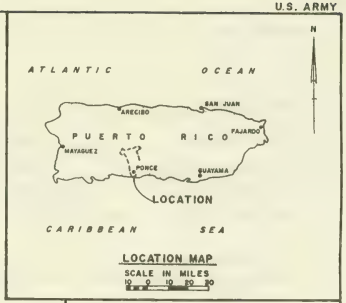
TOTAL BENEFIT-COST RATIO: 9.1 to 1 at 5 5/8 percent.

Portugues Dam

Estimated Total Appropriation Requirement			83,270,000
Programmed Construction		87,650,000	
Unprogrammed Construction		(4,380,000)	
Estimated Non-Federal Cost			53,730,000
Programmed Construction		28,710,000	
Cash Contributions	16,256,000		
Other Costs	12,454,000		
Unprogrammed Construction		25,020,000	
Cash Contributions	25,020,000		
Other Costs	0		
Total Estimated Programmed Construction Cost			116,360,000
Total Estimated Unprogrammed Construction Cost			20,640,000
Total Estimated Project Cost			137,000,000

REMAINING BENEFIT-REMAINING COST RATIO: 6.8 to 1 at 7.3/4 percent.

TOTAL BENEFIT-COST RATIO: 4.1 to 1 at 5 5/8.



LEGEND

- WORK COMPLETED AS OF 30 SEPTEMBER 1985.
- WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1986.
- WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1987.
- WORK REQUESTED TO COMPLETE THE PROJECT AFTER FY 1987.

PORTUGUES AND BUCANA RIVERS
PUERTO RICO
FLOOD CONTROL PROJECT

SCALES AS SHOWN

CORPS OF ENGINEERS
DIVISION: SOUTH ATLANTIC
DISTRICT: JACKSONVILLE
1 JANUARY 1986

APPROPRIATION TITLE: Construction, General - Local Protection Projects (Flood Control)

PROJECT: Rio de la Plata, Puerto Rico (Continuing)

LOCATION: The Rio de La Plata basin drains an area of approximately 240 square miles at a point 11 miles west of San Juan. This area includes all or part of the municipalities of Dorado, Toa Baja, Toa Alta, Camerio, Cedra, Cayey, Arbonito and Barranquitas. The total population of the basin is approximately 290,000 people.

DESCRIPTION: The proposed plan calls for 7.0 miles of channel excavation an improvements, 7.6 miles of levees along both sides of the river, 8 ponding areas, wetland mitigation, recreation facilities, and the replacement of 3 bridges. The project is designed to provide 100-year flood protection for the areas south of Highway 2 and the area surrounding El Polvorin ward and SPF protection for the remainder of the area north of Highway 2. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1990.

REMAINING BENEFIT - REMAINING COST RATIO: 1.8 to 1 at 7 3/4 percent.

TOTAL BENEFIT - COST RATIO: 1.8 to 1 at 8 percent.

BASIS OF BENEFIT - COST RATIO: Benefits are from the economic analyses performed for the April 1992 Limited Reevaluation Report (LRR), revised in June 1992 at April 1992 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$62,400,000				
Estimated Non-Federal Cost		31,500,000		Relocations - Bridges	0	Being determined
Cash Contributions	5,036,000			Channels and Canals	0	Being determined
Other Costs	26,464,000			Levees and Floodwalls	0	Being determined
				Recreation	0	Being determined
Total Estimated Project Cost		93,900,000		Floodway Control and Diversion Structures	0	Being determined
Allocations to 30 September 1995		$ 3,789,000				
Conference Allowance for FY 1996		250,000		Entire Project	0	Being determined
Allocation for FY 1996		217,000	1/			
Allocations through FY 1996		4,006,000	6			
Allocation Requested for FY 1997		600,000	7			

Division: South Atlantic District: Jacksonville Rio de la Plata, PR

SUMMARIZED FINANCIAL DATA (Continue)

Programmed Balance to Complete After FY 1997	57,794,000
Unprogrammed Balance to Complete After FY 1997	0

1/ Reflects $21,000 assigned as savings and slippage and $12,000 reprogrammed from the project.

PHYSICAL DATA

Relocations - Bridges (Replacement)	3
Levees - Miles	7.6
Canals - Miles	7
Ponding Areas	8
Wetlands Mitigation - Acres 2/	5.25
Recreation Areas	3

2/ An additional 10 acres of shallow lagoon and emergent marsh will also be created adjacent to the mitigation area.

JUSTIFICATION: Heavy rainfall combined with the very steep slopes of the upper basin produces high discharges in a relatively short time. Flooding in the area affects over 12,300 families and numerous public buildings and commercial facilities. The area has been declared a flood disaster area by the President six times since 1974. The most recent flood occurred in January 1992 which damaged numerous commercial structures, public facilities and about 3,000 homes and resulted in the loss of two lives. The average annual rainfall is about 71 inches. Average annual benefits are as follows:

Item	Amount
Inundation Reduction	$ 9,225,000
Benefits during Construction	1,237,000
Redevelopment	394,000
Advance Bridge Replacement	557,000
Recreation	692,000
Other: Emergency and Insurance	263,000
Total Annual Benefits	$ 12,368,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Planning, Engineering, and Design	$ 600,000
Total	$ 600,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the authorizing legislation, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, and rights-of-way and dredged material disposal areas.	$ 9,736,000	
Modify or relocate buildings, utilities, roads, bridges, (except railroad bridges), and other facilities, where necessary in the construction of the project.	16,728,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	436,000	
Pay 6.99 percent of the first costs allocated to flood control, and bear all cost of operation, maintenance, and replacement of flood control structures.	4,600,000	
Total non-Federal payments during construction.	$ 31,500,000	$367,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The Commonwealth of Puerto Rico Department of Natural and Environmental Resources is the local sponsor. Acquisition for real estate required for the first contract is underway.

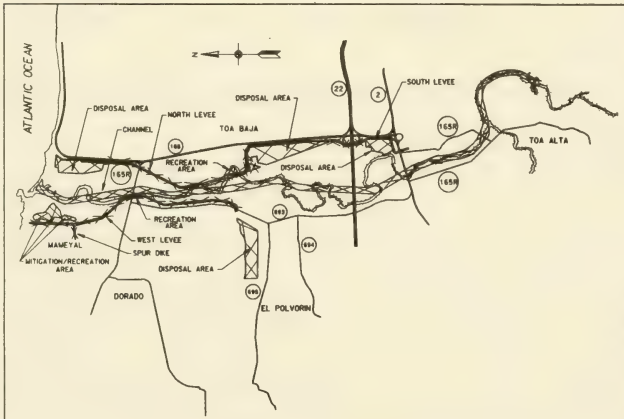
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $62,400,000 is unchanged from the latest estimate of $62,400,000 submitted to Congress (FY 1996).

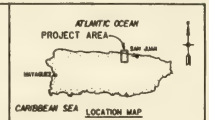
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement for the project was filed in September 1988. The FONSI was signed in April 1993.

OTHER INFORMATION: Funds to initiate planning, engineering, and design were appropriated in Fiscal Year 1990, and funds to initiate construction were appropriated in October 1994.

CORPS OF ENGINEERS

U.S. ARMY





LEGEND

- NONE — WORK PROPOSED AS OF 30 SEPTEMBER 1994.
- NONE — WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 1996.
- NONE — WORK PROPOSED WITH FUNDS RECOMMENDED FOR F.Y. 1997.
- WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 1997.

SCALE IN FEET

2500 1000 0 2500 5000

RIO DE LA PLATA
PUERTO RICO

SCALE AS SHOWN

CORPS OF ENGINEERS
DIVISION SOUTH ATLANTIC
DISTRICT: JACKSONVILLE
1 JANUARY 1996

144

1396

APPROPRIATION TITLE: Construction, General - Local Protection Project (Flood Control)

PROJECT: Rio Puerto Nuevo, Puerto Rico (Continuing)

LOCATION: The Rio Puerto Nuevo drainage basin is located within the San Juan Metropolitan Area along the northern coast of Puerto Rico. The basin joins the southeast side of San Juan Harbor and extends south and up into the foothills of the central mountains of Puerto Rico. The basin is traversed by the Rio Piedras, Rio Puerto Nuevo, Quebrada Margarita, Quebrada Josefina, Quebrada Dona Ana, Quebrada Buena Vista, and Quebrada Guaracanal.

DESCRIPTION: The proposed plan calls for improvements to 11.2 miles of the existing channel of Rio Puerto Nuevo and Rio Piedras and five tributaries of the Rio Puerto Nuevo drainage basin. The project is designed to provide 100-year flood protection for the areas adjacent to the Puerto Nuevo and its tributaries. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 2.5 to 1 at 7 3/4 percent.

TOTAL BENEFIT - COST RATIO: 2.5 to 1 at 8 1/2 percent.

BASIS OF BENEFIT - COST RATIO: Benefits are from the economic analyses performed for the revised General Design Memorandum dated June 1991 at November 1990 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT OF EST FED COST	STATUS (1 Jan 1996)	PHYSICAL PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$322,100,000				
Estimated Non-Federal Cost		107,600,000		Relocations - Bridge	0	Being determined
Cash Contributions	48,131,000			Channels and Canals	0	Being determined
Other Costs	59,469,000			Recreation	0	Being determined
Total Estimated Project Costs		429,700,000				
Allocations to 30 September 1995		$ 10,528,000		Entire Project	0	Being determined
Conference Allowance for FY 1996		7,000,000				
Allocation for FY 1996		6,420,000 1/				
Allocations through FY 1996		16,948,000	5			
Allocation Requested for FY 1997		7,663,000	8			

Division: South Atlantic District: Jacksonville Rio Puerto Nuevo, PR

SUMMARIZED FINANCIAL DATA (Continued):

Programmed Balance to Complete After FY 1997	$ 306,996,000
Unprogrammed Balance to Complete After FY 1997	0

1/ Reflects reduction of $580,000 assigned as savings and slippage.

PHYSICAL DATA

Relocations - Bridges (Replacement)	17
Bridges (Modification)	8
Bridges (Construction)	5
Canals - Miles	11.2
Debris Basins	2
Stilling Areas	2

JUSTIFICATION: The intense development in the basin has altered the natural discharge patterns, significantly increased the runoff rates and restricted the flows in the flood plain. There are over 240,000 people living in the 25 square mile drainage basin. The area is over 75% developed and is expected to be 100% developed by the year 2000. Development has progressed to the point where some of the tributary channels are not capable of carrying the two-year storm without causing flooding. In many areas, houses and other buildings are built adjacent to the banks of the channels and further restrict flood flows. Over 5,700 families would be subject to flooding from the 100-year storm under existing conditions. The average annual rainfall is about 71 inches. Average annual benefits are as follows:

Item	Amount
Inundation Reduction	$ 33,629,000
Location	2,299,000
Redevelopment	1,499,000
Advance Bridge Replacement	177,000
Intensification	28,403,000
Recreation	743,000
Total Annual Benefits	$ 66,750,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Roads, Railroads and Bridges	$ 1,636,000
Channels and Canals	3,430,000
Planning, Engineering, and Design	1,581,000
Supervision and Administration	1,016,000
Total	$ 7,663,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the authorizing legislation, the non-Federal sponsor must comply with the requirements listed below for programmed work.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 19,074,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	24,412,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	247,000	
Pay 12.93 percent of the first costs allocated to flood control, and bear all cost of operation, maintenance, repair, rehabilitation, and replacement of flood control structures.	63,867,000	
Total non-Federal payments during construction.	$107,600,000	$377,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The Commonwealth of Puerto Rico Department of Natural and Environmental Resources is the local sponsor. A Project Cooperation Agreement for the project was executed in March 1994.

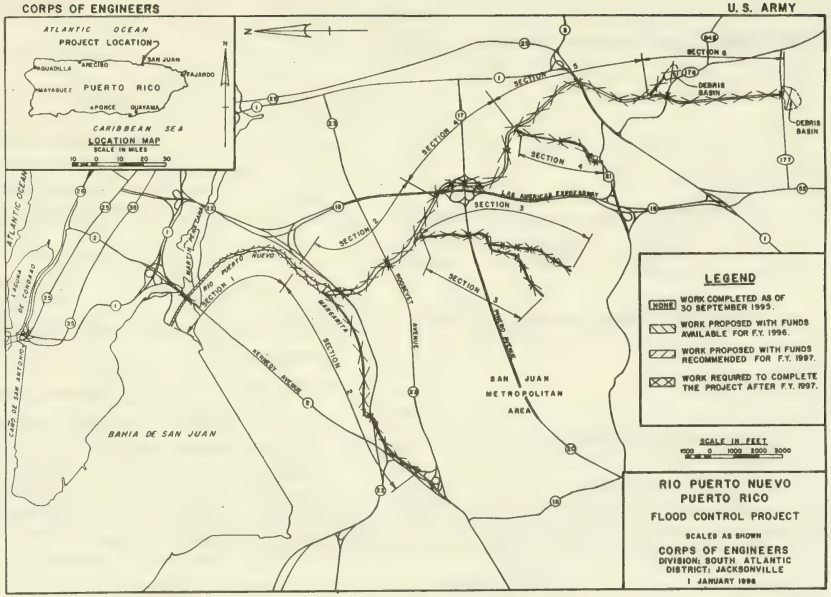
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of $322,100,000 is an increase of $16,600,000 over the latest estimate ($305,500,000) presented to Congress (FY 1996), by way of the following items:

Item	Amount
Price Escalation on Construction Features	$ 12,299,000
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	(911,000)
Schedule Changes	5,212,000
Total	$ 16,600,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement for the project was filed on 6 December 1985. The Finding of No Significant Impact (FONSI) was approved in July 1992.

OTHER INFORMATION: Funds to initiate preconstruction, engineering and design were appropriated in Fiscal Year 1987. Funds to initiate construction were appropriated in Fiscal Year 1994.

1400


CORPS OF ENGINEERS
U.S. ARMY
ATLANTIC OCEAN
PROJECT LOCATION
AGUADILLA
ARECIBO
SAN JUAN
FAJARDO
MAYAGUEZ
PUERTO RICO
PONCE
GUAYAMA
CARIBBEAN SEA
LOCATION MAP
SCALE IN MILES
10 0 10 20 30
N
SECTION 6
SECTION 5
SECTION 4
SECTION 3
SECTION 2
SECTION 1
DEBRIS BASIN
DEBRIS BASIN
LAS AMERICAS EXPRESSWAY
ATLANTIC OCEAN
LAGUNA DE CONDADO
CAPO DE SAN ANTONIO
RIO PUERTO NUEVO
MARGARITA
PONCE DE LEON AVENUE
FERNANDEZ JUNCOS AVENUE
SAN JUAN METROPOLITAN AREA
BAHIA DE SAN JUAN
LEGEND
NONE WORK COMPLETED AS OF 30 SEPTEMBER 1995.
WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 1996.
WORK PROPOSED WITH FUNDS RECOMMENDED FOR F.Y. 1997.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 1997.
SCALE IN FEET
1000 0 1000 2000 3000
RIO PUERTO NUEVO
PUERTO RICO
FLOOD CONTROL PROJECT
SCALES AS SHOWN
CORPS OF ENGINEERS
DIVISION: SOUTH ATLANTIC
DISTRICT: JACKSONVILLE
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Roanoke River Upper Basin, Virginia, Headwaters Area (Continuing)

LOCATION: The project is located on the Roanoke River in the City of Roanoke, Virginia.

DESCRIPTION: The project includes about 6.4 miles of channel widening along the 10 miles of river through the City of Roanoke, Virginia. Channel widening will be accomplished with the construction of a benched channel above the elevation of the average streamflow. Other flood damage reduction features include floodproofing at two locations, training walls to prevent floodwater intrusion into low areas along the river, replacement of two low-level bridges which constrict streamflows, and a flood warning system. Recreation facilities consist of a 5-mile recreation trail along the project reach and access and parking areas. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1986 and Energy and Water Development Appropriation Act of 1990.

REMAINING BENEFIT - REMAINING COST RATIO: 1.5 to 1 at 8-7/8 percent.

TOTAL BENEFIT - COST RATIO: 1.17 to 1 at 8-7/8 percent.

INITIAL BENEFIT - COST RATIO: 1.3 to 1 at 8-7/8 percent (FY 1990).

BASIS OF BENEFIT - COST RATIO: Benefits are from the General Design Memorandum approved in January 1990 at 1988 price levels.

SUMMARIZED FINANCIAL DATA			STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$23,500,000	Entire Project	21	Being Determined
Estimated Non-Federal Cost		14,700,000			
Cash Contributions	$ 3,430,000				
Other Costs	11,270,000				
Total Estimated Project Cost		$38,200,000			

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1995	$ 4,323,000	
Conference Allowance for FY 1996	400,000	
Allocation for FY 1996	109,000 1/	
Allocations through FY 1996	4,432,000	21
Allocation Requested for FY 1997	1,100,000	25
Programmed Balance to Complete After FY 1997	17,968,000	
Unprogrammed Balance to Complete After FY 1997	0	

1/ Reflects $33,000 reduction assigned as savings and slippage and $258,000 reprogrammed from the project.

PHYSICAL DATA

Project Features:		Relocations:	
Channel Excavation	34,000 linear feet	Utility	3,880 linear feet
Training Wall	7,200 linear feet	Roads	2,000 linear feet
Paved Recreation Trail	25,900 linear feet	Overhead Line	6,350 linear feet
Parking/Access Areas	4 each	Buildings	13 each
Riprap	34,310 tons	Bridges	2 each

Land Acquisition (acres):	
Total Rights of Way Requirement	295
Flood Control Rights of Way	185
Disposal Areas (Temporary)	40
Recreation Rights of Way (Separable)	20
Rights of Way Underwater	110

JUSTIFICATION: The project will provide improvements for flood protection and recreation. Most of the property that would be protected is industrial and commercial with a value of $680,000,000. The average annual damages in the project area are estimated at $5,777,000 at October 1988 price levels and 1988 level of development over the next 50 years if no flood control facilities are provided. The project would reduce these damages by $3,073,800. The maximum flood of record, November 1985, caused damages estimated at $112,424,000 under 1985 conditions of development and prics levels. Damages at current levels of development and October 1988 price levels would be $119,997,000. Floodplain development is not promoted by the project. Return on investments by local businesses is adversely affected by the flood problem. Firms have to use resources to repair and attempt floodproofing that could be used for expansion and modernization. In this respect, return on investment is suppressed. The project will have a beneficial effect on a variety of firms and increase return on investment throughout the floodplain. Average annual benefits are as follows:

Annual Benefits	Amount
Flood Damage Protection	$3,073,800
Recreation	343,800
Total	$3,417,600

FISCAL YEAR 1997: The requested amount of $1,100,000 will be applied as follows:

Continue Channels	$ 251,000
Complete Cultural Resources Preservation	266,000
Planning, Engineering and Design	413,000
Construction Management	170,000
Total	$1,100,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Provide all lands, easements, and rights of way including suitable spoil disposal areas	$8,456,000	

NON-FEDERAL COSTS (Continued):

Requirements of Local Cooperation (Continued)	Payments During Construction and Reimbursements	Annual Operation, Maintenance Repair, Rehabilitation and Replacement Costs
Modify or relocate buildings, utilities, roads and other facilities except railroad bridges, where necessary for construction of the project.	$2,814,000	
Pay 25 percent of the cost of the flood warning system (partially offset by a credit for lands, easements, rights of way, and relocations).	11,000	
Pay 5 percent of the total cost allocated to flood control in cash in addition to all lands, easements, rights of way and relocations, and bear all costs of operation, maintenance, and replacement of flood control facilities.	1,539,000	$101,000
Pay one-half of the separable cost allocated to recreation (partially offset by a credit for land, easements, rights of way and relocations) and bear all costs of operation, maintenance and replacement of recreation facilities.	1,514,000	9,000
Pay 25 percent of the cost of the non-structural floodproofing (partially offset by a credit for lands, easements, rights of way and relocations).	366,000	
Total Non-Federal Costs	$14,700,000	$110,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The City of Roanoke is the project sponsor. On 11 April 1989 the voters of the City of Roanoke approved the sale of $7.5 million worth of bonds to pay Roanoke's required cash contribution, acquire lands that are not currently owned and pay for relocation of bridges and utilities. The Local Cooperation Agreement was executed on 25 June 1990. A supplemmnt to the Local Cooperation Agreement addressing the reimbursement for the floodproofing of the hospital was executed in January 1993. The City has deferred right of way acquisition pending resolution of HTRW liability concerns. Recent meetings with the Environmental Protection Agency have narrowed HTRW concerns to two sites which are being cleaned up by the owner. Additional investigations of other sites are being conducted to determine which materials must be handled and disposed of in a special manner under VADEQ regulations.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of $23,500,000 is a decrease of $100,000 from the latest estimate ($23,600,000) presented to Congress (FY 1996). This change includes the following items.

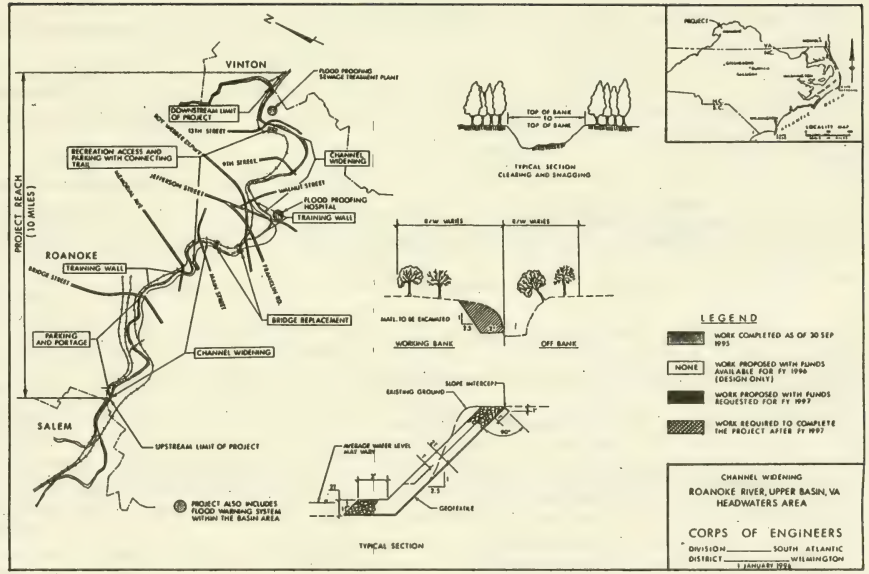
Item	Amount
Post Contract Award and Other Estimating Adjustments	-$100,000
Total	-$100,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final environmental impact statement was filed with the Environmental Protection Agency in February 1985. A Finding of No Significant Impact for design changes was signed on 30 June 1989.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1986 and funds to initiate construction were appropriated in FY 1990. The project was modified by the Energy and Water Development Appropriations Act of 1990 to increase the total estimated project cost to $29,000,000 (October 88 price levels). The Roanoke Logperch, which is located in the project area, was listed as an endangered species effective 18 September 1989 and will be monitored during project construction.

Reimbursement for the Federal share of the floodproofing of Roanoke Hospital, as authorized by Section 102cc of the Water Resources Development Act of 1990, in the amount of $501,000, was made in February 1993.

The HTRW investigations performed by the sponsor identified five potential HTRW sites. In addition, the investigations indicated the presence of various contaminants in varying levels throughout the project area. The Environmental Protection Agency advised in December 1994 that clean up of only two sites will be required which is being accomplished by the owner. Hazardous or non-hazardous determination on the remaining three sites is expected in April 1996.


N
VINTON
FLOOD PROOFING SEWAGE TREATMENT PLANT
DOWNSTREAM LIMIT OF PROJECT
12TH STREET
RECREATION ACCESS AND PARKING WITH CONNECTING TRAIL
9TH STREET
CHANNEL WIDENING
JEFFERSON STREET
MARKET STREET
FLOOD PROOFING HOSPITAL
TRAINING WALL
PROJECT REACH (10 MILES)
ROANOKE
TRAINING WALL
BRIDGE STREET
MAIN STREET
FRANKLIN RD.
BRIDGE REPLACEMENT
PARKING AND PORTAGE
CHANNEL WIDENING
SALEM
UPSTREAM LIMIT OF PROJECT
PROJECT ALSO INCLUDES FLOOD WARNING SYSTEM WITHIN THE BASIN AREA
TOP OF BANK TO TOP OF BANK
TYPICAL SECTION CLEARING AND SNAGGING
R/W VARIES
R/W VARIES
MATL TO BE EXCAVATED
WORKING BANK
OFF BANK
SLOPE INTERCEPT
EXISTING GROUND
AVERAGE WATER LEVEL MAY VARY
GEOFEXTILE
TYPICAL SECTION
PROJECT
LOCALITY MAP
LEGEND
WORK COMPLETED AS OF 30 SEP 1995
NONE
WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1996 (DESIGN ONLY)
WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997
CHANNEL WIDENING
ROANOKE RIVER, UPPER BASIN, VA
HEADWATERS AREA
CORPS OF ENGINEERS
DIVISION SOUTH ATLANTIC
DISTRICT WILMINGTON
1 JANUARY 1996

APPROPRIATION TITLE: Construction General - Multiple Purpose Power

PROJECT: Richard B. Russell Dam and Lake, Georgia and South Carolina (Continuing)

LOCATION: The Richard B. Russell Dam and Lake project is located on the Savannah River about 275 miles above the mouth, 16 miles southeast of Elberton, Georgia and between the existing J. Strom Thurmond and Hartwell Lakes.

DESCRIPTION: The project consists of a concrete gravity-type dam, flanked by earth embankments with a maximum height of 200 feet above the river. The total length of 5,616 feet consists of a 1,884 foot concrete section and embankments of 3,732 feet. The gate controlled spillway has a design capacity of 800,000 c.f.s. The project includes the installation of 345 megawatts of conventional power completed in January 1986 and 320 megawatts of reversible pumped storage power for a total available capacity of 665 megawatts. All work is programmed.

AUTHORIZATION: Flood Control Act of 1966, modified by the Water Resources Development Act of 1976 and the Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable because project construction is substantially complete.

TOTAL BENEFIT - COST RATIO: 1.9 to 1 at 3 1/4 percent.

INITIAL BENEFIT - COST RATIO: 2.0 to 1 at 3 1/4 percent (FY 1972).

BASIS OF BENEFIT - COST RATIO: Benefits are from the cost allocation study completed in December 1991 at October 1991 price levels.

SUMMARIZED FINANCIAL DATA		ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Total Appropriation Requirement	$585,700,000		Construction	98	Jun 1997
			Environmental Monitoring	0	Being determined
Future Non-Federal Reimbursement	$558,654,000		Entire Project	98	Being determined
Estimated Federal Cost (Ultimate)	$ 27,046,000				

SUMMARIZED FINANCIAL DATA (Continued)

				ACCUM. PCT. OF EST. FED. COST
Estimated Non-Federal Cost:			$560,454,000	
Cash Contribution		$ 1,800,000		
Reimbursements		558,654,000		
Power	$540,112,000			
Recreation	18,542,000			
Total Estimated Project Cost			$587,500,000	
Allocations to 30 September 1995			$575,997,000	
Conference Allowance for FY 1996			4,400,000	
Allocation for FY 1996			7,703,000 1/	
Allocations through FY 1996			583,700,000	99
Allocation Requested for FY 1997			$ 1,500,000	99
Programmed Balance to Complete After FY 1997			500,000	
Unprogrammed Balance to Complete After FY 1997			0	

1/ Reflects $365,000 reduction assigned as savings and slippage and $3,668,000 reprogrammed to the project.

PHYSICAL DATA

Dam	
Type	Concrete Gravity, flanked by earth embankments
Maximum Height	200 feet
Length	Concrete Section 1,884 feet; embankments 3,732 feet; total 5,616 feet
Spillway	
Type	Gate Controlled
Design Capacity	800,000 c.f.s.

PHYSICAL DATA (Continued)

Relocations

Roads - 19.5 miles	($32,537,000)
Railroads - (SCL RR) 9.1 miles	($29,921,000)
Cemeteries, Util. Lines and Water Supply Pump Stations	($ 4,966,000)

Lands and Damages
- Acres - 53,112
- Type - Predominantly timber and Agricultural
- Improvements - Typical farm units

Initial Power Installation
- 4 Conventional Units @ 86 MW
- 4 pump Storage Units @ 80 MW; 665 MW

Normal Average Head - 144 feet

Reservoir Capacity (Acre-feet)

Flood Control	140,000
Power	126,800
Dead Storage	899,400
Total	1,166,200

JUSTIFICATION: The 665 megawatts installation, including pumped storage, will help meet the increased power requirements and rapid growth demands in this region. The output can be marketed and fully utilized immediately upon project completion in Federal Energy Regulatory Commission (FERC) supply areas 21, 22, and 23. This includes all of South Carolina, most of North Carolina, Georgia, Alabama, and parts of Mississippi and Florida. The FERC has stated repeatedly the need for this power source. This project will be an integral unit of the plan for development of the Savannah River Basin for flood control, navigation, power, and allied purposes. The recreational facilities will serve an area within a large zone of influence surrounding the three-lake complex of J. Strom Thurmond, Hartwell, and Richard B. Russell lakes. The estimated initial attendance at the project will approach 1,000,000 and should exceed 4,600,000 in the early 2000's. Average annual benefits are as follows:

Annual Benefits	Amount
Power	$ 52,995,000
Recreation	3,597,000
Fish and Wildlife	71,000
Flood Control	177,000
Area Redevelopment	4,212,000
Total	$ 61,052,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Complete Reclamation of Dike/Disposal Area	$ 600,000
Fish & Wildlife Activities	50,000
Recreation Development	405,000
Planning, Engineering and Design	345,000
Construction Management	100,000
Total	$1,500,000

NON-FEDERAL COSTS: In accordance with Public Law 89-72, agreements for recreation development with the States of Georgia and South Carolina have been executed and were approved by the Secretary of the Army 20 May 1974. The costs allocable to power are reimbursable, and will be reviewed and adjusted based on construction costs when the project becomes operational.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Capital Cost allocated to power.	$540,112,000	$3,557,000
Pay, contribute in kind, or repay (repayment not to exceed 50 years) with interest, one-half of the separable costs allocated to recreation.	20,342,000	
Bear all costs of operation, maintenance, and replacement of recreational facilities.	0	249,000
Total Non-Federal Costs	$560,454,000	$3,806,000

1411

STATUS OF LOCAL COOPERATION: The State of Georgia began payments for recreation reimbursements in May 1985. The State of South Carolina began payments in August 1985. Responsibility for repayment of power costs rests with the Southeastern Power Administration pursuant to Federal Laws.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of $585,700,000 is an increase of $10,700,000 over the latest estimate presented to Congress (FY 1996). This change includes the following items:

Item	
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	$10,700,000
Total	$10,700,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (EIS) on conventional installation was submitted to CEQ on 31 May 1974. A supplement on water quality to the final EIS was filed with CEQ in May 1976. The final EIS on pumped storage was filed with the Environmental Protection Agency (EPA) in October 1979. The Supplement on fish and wildlife mitigation to the final EIS was filed with the EPA in December 1981. A supplement to the final EIS on pumped storage was filed in August 1991.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1968. Funds to initiate land acquisition were appropriated in FY 1971 and were allocated in FY 1972. Initial construction funds were appropriated in FY 1975.

A preliminary injunction halting the installation of pumped storage was issued on 23 May 1988. A hearing on the merits of our appeal for injunctive relief was held on 8 December 1988 in the 4th Circuit Court of Appeals in Richmond, Virginia. On 24 January 1989, the Richmond 4th Circuit Court of Appeals granted injunctive relief to the Corps of Engineers to only install the reversible pump turbines. Testing and operation is contingent on demonstrating through the supplemental EIS process that units can be operated in a responsible manner without unduly impacting existing fish habitat. With the record-of-decision on the Supplemental EIS, dated 4 September 1991, the Corps completed a settlement with the litigants to proceed forward into a phased testing and monitoring plan to address environmental issues concerning pumped storage. On 6 December 1991, the Federal District Court of Charleston, South Carolina, modified the pump storage injunction to permit testing of the first pumped storage unit and permit advertising of the pumped storage conveyance channel.

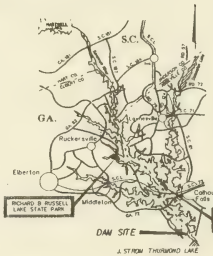
OTHER INFORMATION (Continued):

On 8 April 1992, the Charleston District Federal Court granted injunctive relief to allow environmental testing of the pumped storage units from May 1992 through October 1993 (subsequently from March 1993 through October 1996) and allow the award of the dredging of the tailrace channel. This schedule conforms to the Federal Court and the Corps commitment to the resource agencies as stated in the supplement to the final environmental impact statement record-of-decision. Environmental clearance for dredging was attained 27 May 1994. The dredging was tied to the phased testing process in accordance with the consent order and was completed in March 1995. The Vortex Fix scheduled for unit eight was awarded in February 1994 and installation was completed in December 1994. The District is completing all preparatory work and environmental parameter testing preparing to enter the Phase III Test period from April 1996 through October 1996. Phase III requires full-scale daily operation using all pump back units. After final testing the Corps will prepare a Final Environmental Report for review with the resource agencies.

The Pumped Storage can be declared commercially available in June 1997 following successful completion of the Phase III testing and coordination of the Environmental Report. A two year environmental monitoring period is required in accordance with the Federal Court Consent Order for commercial operation and will be implemented during FY 98 and 99.

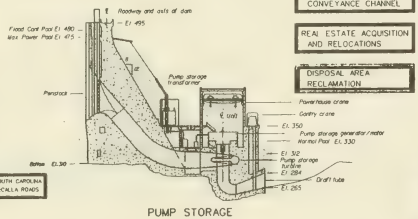
The final EIS on pumped storage included dredging the tailrace conveyance channel.

The scheduled completion date of June 1997 for construction work is a slippage from the latest completion date of September 1996 presented to Congress. This change is due to rescheduling award of the Reclamation of the Dike and Disposal Area (Phase III tailrace dredging) in order to allow for additional site testing and subsequent redesign requirements.



LOCALITY MAP

SCALE IN MILES



PUMP STORAGE
INTAKE AND POWERHOUSE SECTION

SCALE IN MILES

ITEMS NOT SHOWN

PUMP STORAGE CONVEYANCE CHANNEL

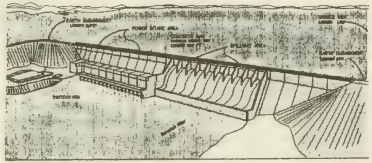
REAL ESTATE ACQUISITION AND RELOCATIONS

DISPOSAL AREA RECLAMATION

VICINITY MAP

STATUS OF WORK

- WORK COMPLETED AS OF 30 SEPTEMBER 1995
- WORK PROPOSED WITH FUNDS AVAILABLE FOR 1996
- WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997
- WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997



PERSPECTIVE

MULTIPLE PURPOSE PROJECTS
INCLUDING POWER

RICHARD B. RUSSELL DAM AND LAKE
GEORGIA AND SOUTH CAROLINA

WORK COMPLETED, IN PROGRESS & PROPOSED

SAVANNAH DISTRICT
SOUTH ATLANTIC DIVISION
1 JANUARY 1996

1414

APPROPRIATION TITLE: Construction, General - Local Protection

PROJECT: Kissimmee River, Florida (Continuing)

LOCATION: The Kissimmee River basin is approximately 3,000 square miles in size. It stretches from the southern Orlando area southward to Lake Okeechobee in central Florida. The project to restore the Kissimmee River has two component parts; the upper basin, referred to as the Headwaters Revitalization, and the lower basin, referred to as the Kissimmee River Restoration. The upper basin is being pursued under Section 1135 of the Water Resources Development Act of 1986 and is generally located in south-central Florida north of State Road 60. The lower basin was authorized in the Water Resources Development Acts of 1988 and 1992 and is located south of the outlet from lakes Kissimmee and Hatchineha and Cypress Lake.

DESCRIPTION: The upper basin portion of the project consists of water regulation schedule modifications, canal and structure improvements, and land acquisition. This will result in environmental benefits in the upper chain of lakes and in the lower basin. More natural fluctuations of water levels will enhance the peripheral marshes of the lakes. Reestablishing a more natural timing of flows to the lower basin will result in restoration or enhancement of the Kissimmee River ecosystem. Structural improvements will include enlargements of existing canals and existing water control structures. Real estate interests will be acquired for the effected lands. In the lower basin portion of the project the existing C-38 canal was constructed along the general alignment of the meandering Kissimmee River from Lake Kissimmee to Lake Okeechobee as part of the Central and Southern Florida Project. Six water control structures and locks were constructed along the canal. The project provided flood control and water control benefits for the upper and lower basins. The Kissimmee River project is addressing restoration of natural flooding of the floodplain to reestablish historic wetland conditions. Construction will include backfilling approximately 22 miles of the C-38 canal, excavation of approximately 9 miles of new river channel to provide hydrologic connection, and the removal of 2 water control structures and locks in the backfilled sections. The project will also include acquisition of fee title for lands within the 5-year-floodplain and acquisition of flowage easements for lands between the five-year-flood line and the 100-year-flood line.

AUTHORIZATION: Water Resources Development Acts of 1988 (Section 46) and 1992 (Section 101).

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable

TOTAL BENEFIT - COST RATIO: Not applicable

INITIAL BENEFIT - COST RATIO: Not applicable

BASIS OF BENEFIT - COST RATIO: Not applicable

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		255,600,000		Lands and Damages	42	Being determined
Programmed Construction	255,600,000			Relocations - Bridges	0	Being determined
Unprogrammed Construction	0			Channels and Canals	0	Being determined
				Flood Control Struct	0	Being determined
Estimated Non-Federal Cost		414,400,000		Entire Project	10	Being determined
Programmed Construction	245,129,000					
Cash Contributions	38,156,000					
Other Costs	206,973,000					
Estimated Non-Federal Cost						
Unprogrammed Construction	169,271,000					
Cash Contributions	0					
Locally Preferred Plan	169,271,000					
Total Estimated Programmed Construction Cost		500,729,000				
Total Estimated Unprogrammed Construction Cost		169,271,000				
Total Estimated Project Cost		670,000,000				
Allocations to 30 September 1995		31,371,000				
Conference Allowance for FY 1996		0				
Allocation for FY 1996		0				
Allocations through FY 1996		31,371,000	13			
Allocation Requested for FY 1997		3,000,000	14			
Programmed Balance to Complete After FY 1997		221,229,000				
Unprogrammed Balance to Complete After FY 1997		0				

PHYSICAL DATA

Relocations - (Bridges)	2
Canals - Miles Backfilled	22
Canals - New River Channel	9
Water Control Structures Removal	2

JUSTIFICATION: Local water resource development of the Kissimmee River began in the late 1800's. In the 1960's, the river was channelized as part of the comprehensive Central and Southern Florida Project. Although the project has provided continuing navigation and effective flood control, it also resulted in long-term degradation of the natural ecosystem. The 103 mile river that historically meandered across and inundated about 35,000 acres of wetlands over a broad flood plain was reduced to a 56 mile canal that has successfully contained almost all flows since its completion. The channelization coupled with the modifications of the Lower Basin tributary watersheds and efficient control of flood waters and regulation of inflows from the Upper Basin significantly altered hydrologic characteristics of the ecosystem.
Project formulation and scoping was not based on traditional economic benefit-cost analyses and net benefit optimization; rather the plan was based on the most cost effective plan which would meet fish and wildlife resources objectives for restoring ecological integrity. As a result, project construction will result in the restoration of 52 miles of river; 27,000 acres of wetlands; improved water quality characteristics for the Kissimmee River; and restored conditions for over 300 fish and wildlife species.

FISCAL YEAR 1997: The requested funds of $3,000,000, along with programmed carryover funds of $12,326,000, will be applied as follows:

Initiation of construction of flood control structures	521,000
Continue construction of channels and canals	10,000,000
Planning, Engineering, and Design	3,205,000
Construction Management	1,600,000
Total	$15,326,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the authorizing legislation, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction, and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide; with credit toward the non-Federal 50 percent share of project costs; all lands, easements, rights of way, and excavated or dredged material disposal areas.	183,914,000	

NON-FEDERAL COST (Continued)

NON-FEDERAL COST: (Continued)

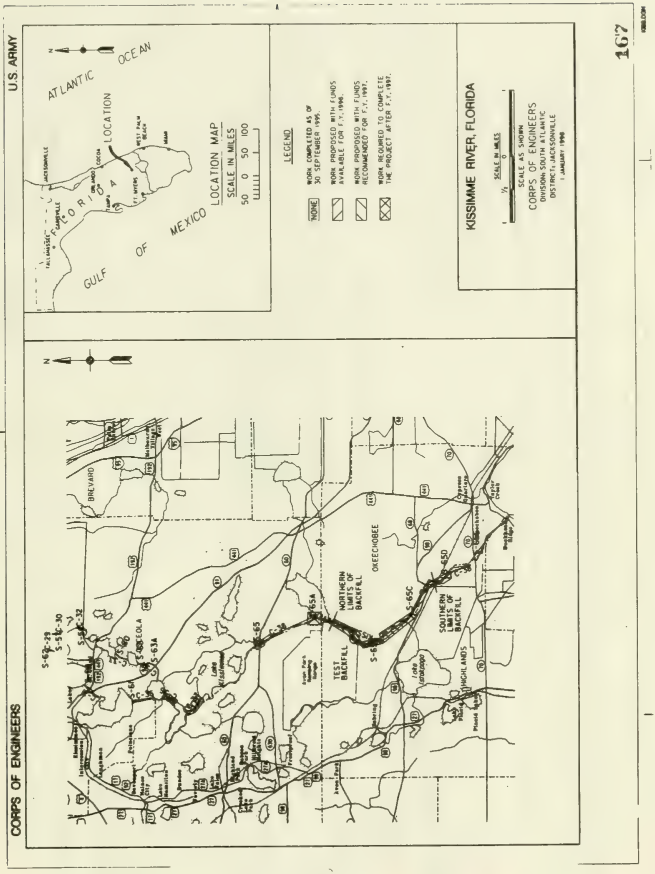
Requirements of Local Cooperation	Payments During Construction, and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Modify or relocate; with credit toward the non-Federal 50 percent share of project costs; utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	10,300,000	
Pay 50 percent of the costs allocated to environmental restoration, and pay all costs of operation, maintenance, repair, rehabilitation, and replacement.	50,915,000	
Pay 100 percent of the locally-preferred features, and pay all costs of operation, maintenance, and replacement of flood control facilities.	169,271,000	
Total Non-Federal Costs	$414,400,000	

STATUS OF LOCAL COOPERATION: A Project Cooperation Agreement reflecting the cost sharing outlined in House Document 102-286 dated April 7, 1992 was executed with the South Florida Water Management District (SFWMD) in March 1994. The local sponsor will be required to provide a cash contribution of 16.9% (reflecting credit for lands, easements, rights of way, relocations, and disposal areas) of construction costs. A schedule has been developed for cash contributions which takes into account the value of the local sponsor's investment in lands and relocations, thus requiring the initial local sponsor cash contribution in Fiscal Year 2004 for expenditure in Fiscal Year 2005.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of $255,600,000 is the same as last presented to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with CEQ on April 5, 1992. A supplement to the Environmental Impact Statement will be integrated into the Upper Basin project modification report. The draft report was submitted to higher authority in August 1995.

OTHER INFORMATION: Funds to initiate preconstruction planning were allocated in Fiscal Year 1992.


U.S. ARMY
CORPS OF ENGINEERS
ATLANTIC OCEAN
GULF OF MEXICO
FLORIDA
LOCATION
LOCATION MAP
SCALE IN MILES
50 0 50 100
LEGEND
WORK COMPLETED AS OF 30 SEPTEMBER 1995.
WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 1996.
WORK PROPOSED WITH FUNDS RECOMMENDED FOR F.Y. 1997.
WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 1997.
NONE
KISSIMME RIVER, FLORIDA
SCALE AS SHOWN
CORPS OF ENGINEERS
DIVISION: SOUTH ATLANTIC
DISTRICT: JACKSONVILLE
1 JANUARY 1996
BREVARD
OSCEOLA
OKEECHOBEE
HIGHLANDS
S-65
S-65A
S-65C
S-65D
S-63A
C-38
NORTHERN LIMITS OF BACKFILL
SOUTHERN LIMITS OF BACKFILL
TEST BACKFILL
Lake Kissimmee
Lake Istokpoga
167

APPROPRIATION: Construction, General - Multiple Purpose Power

PROJECT: Jim Woodruff Powerhouse, FL (Major Rehabilitation) (Continuing)

LOCATION: Jim Woodruff Lock and Dam is located at mile 106.4 on the Apalachicola River, 37 miles northwest of Tallahassee, Florida, in Jackson and Gadsden Counties, Florida. The navigation lock and fixed crest spillway are located on the right bank of the river. The powerhouse is on the left bank, across the river from the lock, adjacent to the gated spillway.

DESCRIPTION: The plan of improvement is to replace the three turbines and rewind the three generators. The plan also includes the replacement of several peripheral electrical components, most notably the transformers.

AUTHORIZATION: Section 2 of the River and Harbor Act of 1945, further modified by the River and Harbor Act of 1946.

REMAINING BENEFIT-REMAINING COST RATIO: 1.4 at 8 percent.

TOTAL BENEFIT-COST RATIO: 1.4 at 8 percent.

INITIAL BENEFIT-COST RATIO: 1.4 at 8 percent (FY 1996).

BASIS OF BENEFIT-COST RATIO: Benefits are from the Major Rehabilitation Evaluation Report at October 1993 price levels.

SUMMARIZED FINANCIAL DATA

						ACCUM. PCT.OF EST.FED. COST
			Allocations to 30 September 1995		0	
Estimated Total Appropriation Requirement		$30,600,000	Conference Allowance for FY 1996		600,000	
Future Non-Federal Reimbursement		30,600,000	Allocation for FY 1996		550,000 1/	
Estimated Federal Cost (Ultimate)		0	Allocation through FY 1996		550,000	2
Estimated Non-Federal Cost		30,600,000	Allocation Requested for FY 1997		1,400,000	6
Cash Contributions		0	Programmed Balance to Complete after FY 1997		28,650,000	
Other Costs	0		Unprogrammed Balance to Complete after FY 1997		0	
Reimbursements	30,600,000					
Power	30,600,000					
Total Estimated Project Cost		$30,600,000				

1/ Reflects $50,000 reduction assigned as savings and slippage.

STATUS: (1 Jan 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Construction not started	0	Being Determined

PHYSICAL DATA:

Replace main transformers
Rewind 3 generators
Replace 3 turbines including items listed below:
- Runner
- Shaft
- Wicket gate bushings
- Governor
- Piping

JUSTIFICATION: The Jim Woodruff Powerhouse has experienced a decaying reliability level since the early 1970's. Contributing factors in the reliability decline are welded turbine blades, age and tailwater degradation that has increased hydraulic head and decreased submergence on the turbines. Engineering analysis shows that these problems along with increasing generating outages can be expected to continue into the future. The result of these increased outages, as well as the reduced plant efficiencies, will be increased operation and maintenance costs, increased production costs and loss of generating revenues to the treasury. Continued operation of Jim Woodruff powerhouse in its deteriorated state without rehabilitation, has an impact on total power production costs in North Florida amounting to $3.5 million per year. Average annual benefits for the major rehabilitation project are $3,541,000.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue Construction	$ 900,000
Continue Planning, Engineering, & Design	300,000
Continue Construction Management	200,000
TOTAL	$ 1,400,000

NON-FEDERAL COST: The costs allocable to power are reimbursable, and will be reviewed and adjusted based on construction costs when the project becomes operational.

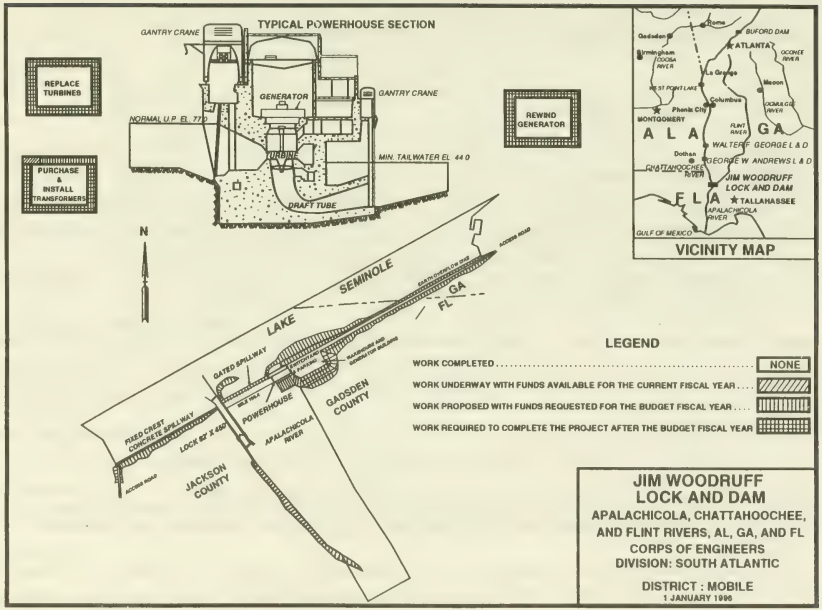
Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual, Operation, Maintenance, and Replacement Costs
Capital Cost allocated to power	$30,600,000	$ 0
Total Non-Federal Costs	$30,600,000	$ 0

STATUS OF LOCAL COOPERATION: Responsibility for repayment of hydropower costs rests with the Southeastern Power Administration pursuant to Federal law.

COMPARISON OF FEDERAL COST ESTIMATE: The current cost estimate of $30,600,000 is the same as the latest estimate ($30,600,000) presented to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A draft Environmental Assessment (EA) was prepared which addressed the expected impacts of the recommended alternative as well as other potential alternatives under consideration. The draft EA contained a biological assessment (BA), as required under the Endangered Species Act of 1973, which concluded with a determination of no adverse effect on the Gulf of Mexico sturgeon, a threatened species which occurs in the tailrace area. The draft EA, containing the BA, concluded with a Finding of No Significant Impact (FONSI). The Draft EA and FONSI were fully coordinated with the public and State and Federal agencies. The U.S. Fish and Wildlife Service (USFWS) concurred with the BA determination of no adverse effect on the sturgeon. The State of Florida determined the project to be consistent with the State Coastal Zone Management Program. The commenting agencies concurred with the FONSI for the recommended alternative discussed in the draft environmental documentation. Agency comments were then incorporated into the final EA and FONSI, which was signed on 1 March 1993.

OTHER INFORMATION: None


TYPICAL POWERHOUSE SECTION
GANTRY CRANE
GENERATOR
GANTRY CRANE
NORMAL U.P. EL. 77.0
TURBINE
MIN. TAILWATER EL. 44.0
DRAFT TUBE
REPLACE TURBINES
PURCHASE & INSTALL TRANSFORMERS
REWIND GENERATOR
N
LAKE SEMINOLE
GA
FL
GATED SPILLWAY
FIXED CREST CONCRETE SPILLWAY
LOCK 85' X 465'
POWERHOUSE
APALACHICOLA RIVER
GADSDEN COUNTY
JACKSON COUNTY
ACCESS ROAD
Rome
BUFORD DAM
Gadsden
ATLANTA
Birmingham
TOCOA RIVER
OCONEE RIVER
La Grange
Macon
WEST POINT LAKE
Columbus
OCMULGEE RIVER
Phenix City
MONTGOMERY
FLINT RIVER
A L A
G A
WALTER F. GEORGE L & D
Dothan
GEORGE W. ANDREWS L & D
CHATTAHOOCHEE RIVER
JIM WOODRUFF LOCK AND DAM
F L A
TALLAHASSEE
APALACHICOLA RIVER
GULF OF MEXICO
VICINITY MAP
LEGEND
WORK COMPLETED ..... NONE
WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR ....
WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR ....
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR
JIM WOODRUFF LOCK AND DAM
APALACHICOLA, CHATTAHOOCHEE, AND FLINT RIVERS, AL, GA, AND FL
CORPS OF ENGINEERS
DIVISION: SOUTH ATLANTIC
DISTRICT : MOBILE
1 JANUARY 1996

APPROPRIATION TITLE: Construction General - Multiple Purpose Power

PROJECT: Hartwell Lake Powerhouse, GA and SC (Major Rehabilitation) (Continuing)

LOCATION: The Hartwell Lake Powerhouse is located on the Savannah River, 89 miles north of Augusta, GA and 305 miles north of the mouth of the river.

DESCRIPTION: The recommended plan involves the rewinding of four generator units, the refurbishment of the turbines, and the replacement of key electrical/mechanical peripheral equipment to improve the overall reliability of the project, to reduce operation and maintenance costs, and to reduce unscheduled repair costs. All work is programmed.

AUTHORIZATION: Flood Control Act approved 17 May 1950 and Flood Control Act approved 3 July 1958.

REMAINING BENEFIT-REMAINING COST RATIO: 2.5 to 1 at 8 percent.

TOTAL BENEFIT-COST RATIO: 2.3 to 1 at 8 percent.

INITIAL BENEFIT-COST RATIO: 3.1 to 1 at 8 percent. (FY 1996)

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available Evaluation Report for New Major Rehabilitation forwarded to HQUSACE in July 1993, at 1993 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Total Appropriation Requirement		$17,700,000		Entire Project	42	Being determined
Future Non-Federal Reimbursement		$17,700,000				
Estimated Non-Federal Cost (Ultimate)		$ 0				
Cash Contributions	$ 0					
Other Costs	$ 0					
Reimbursements	$17,700,000					
Power	$17,700,000					
Total Estimated Project Cost		$17,700,000				

PHYSICAL DATA	
Rewind Generators	4
Refurbish Turbines	4
Replace Peripherals	4

Division: South Atlantic

District: Savannah

Hartwell Lake Powerhouse, GA and SC

18 March 1996

SUMMARIZED FINANCIAL DATA (Continued)

Allocations to 30 September FY 1995	$ 0	
Conference Allowance for FY 1996	$ 1,400,000	
Allocation for FY 1996	$ 1,284,000 1/	
Allocations through FY 1996	$ 1,284,000	8
Allocation Requested for FY 1997	$ 8,300,000	54
Programmed Balance to Complete after FY 1997	$ 8,116,000	
Unprogrammed Balance to Complete after FY 1997	$ 0	

1/ Reflects $116,000 reduction assigned as savings and slippage.

JUSTIFICATION: The Hartwell Powerplant, which was initially placed into operation in 1962, has over recent years suffered from frequent unanticipated powerplant shutdowns, an increased level of O&M costs for repair and routine maintenance, and a general decrease in hydropower capacity and power production. These problems have been linked to an acceptable practice of running the generators for extended periods of time at levels well past their rated capacity which was necessary to provide power needs. The proposed plan of improvement will replace the windings of four generators to state of the art condition and replace key turbine and electrical/mechanical components to allow an increase in hydropower capacity to be made available to the power marketing agencies. The plan of improvement will arrest the further degradation of the hydroelectric units, decrease operation and maintenance costs, improve the powerplant's overall reliability, and increase the power generation capability. Average annual benefits for hydroelectric power are $3,354,600.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Rehabilitation of Power Plant	$ 7,888,000
Planning, Engineering, and Design	86,000
Construction Management	326,000
Total	$ 8,300,000

1425

NON-FEDERAL COST: The costs allocable to power are reimbursable, and will be reviewed and adjusted based on construction costs when the project becomes operational.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance Repair, Rehabilitation, and Replacement Costs
Pay all costs allocated to hydropower and bear all costs of operation, maintenance, repair, rehabilitation and replacement of hydropower facilities.	$17,700,000	$ 120,000

STATUS OF LOCAL COOPERATION: Responsibility for repayment of hydropower costs rests with the Southeastern Power Administration pursuant to Federal laws.

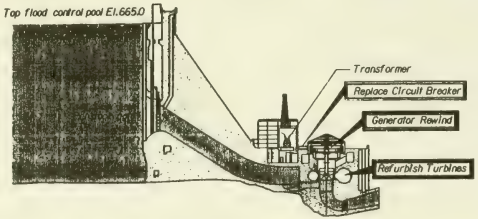
COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $17,700,000 is the same as the latest estimate presented to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: Based on the environmental analysis contained in the Evaluation Report dated July 1993, an Environmental Assessment with a FONSI has been completed and is contained in the FY 1995 Major Rehab Program, Hartwell Powerplant Evaluation Report.

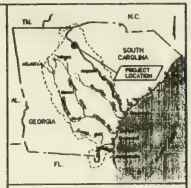
OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1996.

CORPS OF ENGINEERS

U.S. ARMY



INTAKE SECTION



VICINITY MAP

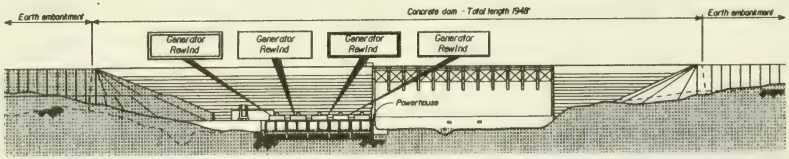
STATUS OF WORK

E & D — WORK COMPLETED AS OF 30 SEPTEMBER 1995

WORK PROPOSED WITH FUNDS AVAILABLE FOR 1996

WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997

WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997



DOWNSTREAM ELEVATION

100 0 100

MULTIPLE PURPOSE POWER PROJECTS
(MAJOR REHABILITATION)
HARTWELL LAKE POWERHOUSE
GEORGIA AND SOUTH CAROLINA

WORK COMPLETED, IN PROGRESS & PROPOSED

SAVANNAH DISTRICT
SOUTH ATLANTIC DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Construction General - Multiple Purpose Power

PROJECT: Thurmond Lake Powerhouse, GA and SC (Major Rehabilitation), (Continuing)

LOCATION: The Thurmond Lake Powerhouse is located on the Savannah River, 22 miles north of Augusta, GA and 216 miles north of the mouth of the river.

DESCRIPTION: The recommended plan involves the rewinding of seven generator units, the replacement of the turbine rotating parts, and the refurbishment or replacement of key peripheral equipment in order to improve the overall reliability of the project, to reduce operation and maintenance costs, to reduce unscheduled repair costs, and to provide additional hydropower capacity and power revenues. All work is programmed.

AUTHORIZATION: Flood Control Act of 1944.

REMAINING BENEFIT-REMAINING COST RATIO: 1.3 to 1 at 8 percent.

TOTAL BENEFIT-COST RATIO: 1.3 to 1 at 8 percent.

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 8 percent. (FY 1996)

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available Evaluation Report for New Major Rehabilitation Project forwarded to HQUSACE in March 1994, at February 1994 price levels.

SUMMARIZED FINANCIAL DATA		ACCUM. PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Total Appropriation Requirement		$69,700,000	Entire Project	20	Being determined
Future Non-Federal Reimbursement		$69,700,000			
Estimated Non-Federal Cost (Ultimate)		$ 0			
Cash Contributions	$ 0				
Other Costs	$ 0				
Reimbursements	$69,700,000				
Power	$69,700,000				
Total Estimated Project Cost		$69,700,000			
Allocations to 30 September FY 1995		$ 0			
Conference Allowance for FY 1996		$ 2,200,000			
Allocation for FY 1996		$ 2,018,000 1/			
Allocations through FY 1996		$ 2,018,000 3			
Allocation Requested for FY 1997		$ 4,900,000 10			
Programmed Balance to Complete after FY 1997		$62,782,000			
Unprogrammed Balance to Complete after FY 1997		$ 0			

PHYSICAL DATA

Rewind Generators	7
Replace Turbines	7
Replace Peripherals	7

1/ Reflects $182,000 reduction assigned as savings and slippage.

JUSTIFICATION: The J. Strom Thurmond Powerplant, which was initially placed into operation in 1954, is showing signs of excessive wear of the generators, the peripheral equipment and the turbines. This has resulted in a loss of efficiency, reduced reliability of the units and lost power output for the units. The proposed plan of improvement calls for rewinding the generators to maximum capacity, replacement of the turbine runner, and the replacement or refurbishment of key electrical/mechanical peripheral equipment. The plan of improvement will arrest the further degradation of the hydroelectric units, decrease operation and maintenance costs, improve the powerplant's overall reliability, and increase the power generation capability. Average annual benefits for hydroelectric power are $7,890,000.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Rehabilitation of Power Plant	$ 3,475,000
Planning, Engineering, and Design	689,000
Construction Management	736,000
Total	$ 4,900,000

NON-FEDERAL COST: The costs allocable to power are reimbursable, and will be reviewed and adjusted based on construction costs when the project becomes operational.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance Repair, Rehabilitation, and Replacement Costs
Pay all costs allocated to hydropower and bear all costs of operation, maintenance, repair, rehabilitation and replacement of hydropower facilities.	$69,700,000	$ 485,000

STATUS OF LOCAL COOPERATION: Responsibility for repayment of hydropower cost rests with the Southeastern Power Administration pursuant to Federal laws.

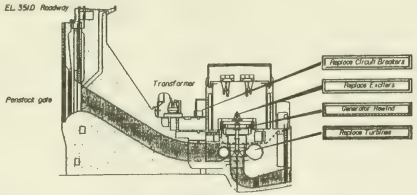
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $69,700,000 is the same as the latest estimate presented to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: Based on the environmental analysis contained in the Evaluation Report dated March 1994, an Environmental Assessment with a FONSI has been completed and is contained in the FY 1996 Major Rehab Program, J. Strom Thurmond Powerplant Evaluation Report.

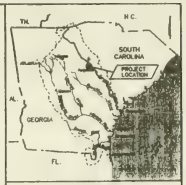
OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1996.

CORPS OF ENGINEERS

U S ARMY



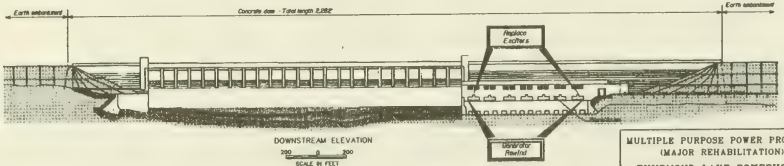
INTAKE SECTION



VICINITY MAP

STATUS OF WORK

E & D	WORK COMPLETED AS OF 30 SEPTEMBER 1995
	WORK PROPOSED WITH FUNDS AVAILABLE FOR 1996
	WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997
	WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997



DOWNSTREAM ELEVATION

300 0 300

SCALE IN FEET

MULTIPLE PURPOSE POWER PROJECTS
(MAJOR REHABILITATION)

THURMOND LAKE POWERHOUSE
GEORGIA AND SOUTH CAROLINA

WORK COMPLETED, IN PROGRESS & PROPOSED

SAVANNAH DISTRICT
SOUTH ATLANTIC DIVISION
1 JANUARY 1996

SOUTH ATLANTIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation

a. Channels and Harbors

The program request of $114,752,000 provides for essential work on 65 harbor and channel projects named in the list which follows. The work to be accomplished under this activity consists of maintaining the navigation channels and harbors and anchorages of coastal harbors and waterways by means of dredging, snagging, bank revetment, and operation and repair of navigation structures, all as authorized in the laws adopting river and harbor projects.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
ALABAMA			
Bayou Coden	231,000	5,000	
	(5,000)	(5,000)	1. None.
	(226,000)	(0)	2. None.
Bayou La Batre	455,000	5,000	
	(5,000)	(5,000)	1. None.
	(450,000)	(0)	2. None.
Dog and Fowl Rivers	505,000	550,000	
	(5,000)	(66,000)	1. Environmental studies & monitoring studies.
	(500,000)	(484,000)	2. None.
Gulf Intracoastal Waterway (Mobile)	3,172,000	3,054,000	
	(318,000)	(331,000)	1. None
	(2,854,000)	(2,723,000)	2. Dredging

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont.)

a. Channels and Harbors (Cont.)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Mobile Harbor	17,780,000 (214,000) (17,566,000)	17,918,000 (202,000) (17,716,000)	1. None. 2. Dredging.
Perdido Pass Channel	350,000 (0) (350,000)	899,000 (0) (899,000)	1. None. 2. Dredging
FLORIDA			
AIWW (Jacksonville)	75,000 (0) (75,000)	1,436,000 (40,000) (1,396,000)	1. Condition surveys and dredging studies. 2. Dredging.
Apalachicola Bay	187,000 (59,000) (128,000)	150,000 (0) (150,000)	1. Decrease in environmental requirements. 2. None.

1433

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont.)

a. Channels and Harbors (Cont.)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Canaveral Harbor	4,736,000 (574,000) (4,162,000)	3,545,000 (517,000) (3,028,000)	1. None. 2. Dredging.
Charlotte Harbor	3,275,000 (75,000) (3,200,000)	35,000 (35,000) (0)	1. Decrease in condition and operations studies. 2. None.
East Pass Channel	886,000 (24,000) (862,000)	886,000 (0) (886,000)	1. Decrease in condition and operations studies. 2. Dredging.
Escambia-Conecuh Rivers	0 (0) (0)	136,000 (136,000) (0)	1. Environmental Studies. 2. None.
Fernandina Harbor	1,623,000 (107,000) (1,516,000)	1,848,000 (110,000) (1,738,000)	1. None. 2. Dredging.
Fort Pierce Harbor	712,000 (62,000) (650,000)	696,000 (67,000) (629,000)	1. None. 2. Dredging.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont.)

a. Channels and Harbors (Cont.)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
IWW, Caloosahatchee-Anclote Rivers	221,000 (110,000) (111,000)	209,000 (117,000) (92,000)	1. None. 2. None.
IWW, Jacksonville to Miami	3,293,000 (335,000) (2,958,000)	3,538,000 (354,000) (3,184,000)	1. None. 2. Dredging.
Jacksonville Harbor	4,119,000 (127,000) (3,992,000)	2,965,000 (140,000) (2,825,000)	1. Increase in condition and operations studies. 2. Dredging.
Johns Pass	400,000 (40,000) (360,000)	40,000 (40,000) (0)	1. None. 2. None.
La Grange Bayou	0 (0) (0)	80,000 (80,000) (0)	1. Environmental studies. 2. None.
Long Boat Pass, FL	0 (0) (0)	40,000 (40,000) (0)	1. Condition and operations studies. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont.)

a. Channels and Harbors (Cont.)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Miami Harbor	295,000	343,000	
	(85,000)	(87,000)	1. None.
	(210,000)	(256,000)	2. None.
New Pass	1,086,000	30,000	
	(60,000)	(30,000)	1. Decrease in condition and operations studies.
	(1,026,000)	(0)	2. None.
Palm Beach Harbor	1,459,000	2,233,000	
	(42,000)	(43,000)	1. None.
	(1,417,000)	(2,190,000)	2. Dredging.
Panama City Harbor	717,000	35,000	
	(107,000)	(35,000)	1. Decrease in condition and operations studies.
	(610,000)	(0)	2. None.
Pensacola Harbor	0	120,000	
	(0)	(120,000)	1. Environmental Studies.
	(0)	(0)	2. None.
Ponce de Leon Inlet	2,147,000	113,000	
	(42,000)	(105,000)	1. Increase in condition and operations studies.
	(2,105,000)	(8,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont.)

a. Channels and Harbors (Cont.)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Port Everglades Harbor	0	55,000	
	(0)	(50,000)	1. Condition and operations studies.
	(0)	(5,000)	2. None.
St. Augustine Harbor	4,000	10,000	
	(2,000)	(2,000)	1. None.
	(2,000)	(8,000)	2. None.
St. Lucie Inlet	85,000	68,000	
	(80,000)	(60,000)	1. Decrease in condition and operations studies.
	(5,000)	(8,000)	2. None.
St. Petersburg Harbor	0	13,000	
	(0)	(0)	1. None.
	(0)	(13,000)	2. None.
Tampa Harbor	3,744,000	4,068,000	
	(257,000)	(258,000)	1. None.
	(3,487,000)	(3,810,000)	2. Dredging.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont.)

a. Channels and Harbors (Cont.)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Withlacoochee River	34,000	41,000	
	(0)	(0)	1. None.
	(34,000)	(41,000)	2. None.
GEORGIA			
AIWW (Savannah)	1,916,000	1,710,000	
	(336,000)	(173,000)	1. Decrease in condition and operations studies.
	(1,580,000)	(1,537,000)	2. Dredging.
Brunswick Harbor	3,411,000	2,883,000	
	(913,000)	(328,000)	1. Decrease in condition and operations studies.
	(2,498,000)	(2,555,000)	2. Dredging.
Savannah Harbor	8,377,000	14,714,000	
	(751,000)	(416,000)	1. Decrease in condition and operations studies.
	(7,626,000)	(14,298,000)	2. Dredging.
Savannah River Below Augusta	2,475,000	277,000	
	(162,000)	(165,000)	1. None.
	(2,313,000)	(112,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont.)

a. Channels and Harbors (Cont.)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
MISSISSIPPI			
Biloxi Harbor	461,000 (56,000) (405,000)	800,000 (0) (800,000)	1. Decrease in environmental requirements. 2. Dredging.
Gulfport Harbor	2,876,000 (133,000) (2,743,000)	2,999,000 (209,000) (2,790,000)	1. Increase in environmental requirements. 2. Dredging.
Pascagoula Harbor	2,998,000 (139,000) (2,859,000)	3,001,000 (228,000) (2,773,000)	1. Increase in environmental requirements. 2. Dredging.
NORTH CAROLINA			
Atlantic Beach Channels	0 (0) (0)	20,000 (20,000) (0)	1. Environmental requirements. 2. None.
AIWW (Wilmington)	5,097,000 (1,240,000) (3,857,000)	5,328,000 (1,048,000) (4,280,000)	1. Decrease in condition surveys. 2. Dredging.

23-577 96 – 46

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont.)

a. Channels and Harbors (Cont.)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Avon Harbor	0 (0) (0)	20,000 (20,000) (0)	1. Environmental requirements. 2. None.
Beaufort Harbor	350,000 (0) (350,000)	20,000 (20,000) (0)	1. Environmental requirements. 2. None.
Belhaven Harbor	0 (0) (0)	90,000 (0) (90,000)	1. None. 2. None.
Bogue Inlet and Channels	655,000 (0) (655,000)	655,000 (0) (655,000)	1. None. 2. None.
Carolina Beach Inlet	852,000 (0) (852,000)	852,000 (0) (852,000)	1. None. 2. None.
Channel from Back Sound to Lookout Bight, NC	0 (0) (0)	20,000 (20,000) (0)	1. Environmental requirements. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont.)

a. Channels and Harbors (Cont.)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Drum Inlet	0	2,000,000	
	(0)	(0)	1. None.
	(0)	(2,000,000)	2. Dredging.
Lockwoods Folly River	857,000	857,000	
	(0)	(0)	1. None.
	(857,000)	(857,000)	2. Dredging.
Manteo (Shallowbag) Bay	6,506,000	6,171,000	
	(135,000)	(203,000)	1. Increase in condition and operations studies.
	(6,371,000)	(5,968,000)	2. Dredging.
Masonboro Inlet and Connecting Channels	4,650,000	890,000	
	(0)	(0)	1. None.
	(6,650,000)	(890,000)	2. North jetty repairs.
Morehead City Harbor	3,108,000	2,748,000	
	(308,000)	(248,000)	1. Decrease in condition and operations studies.
	(2,800,000)	(2,500,000)	2. Dredging.
New River Inlet	1,595,000	1,595,000	
	(0)	(0)	1. None.
	(1,595,000)	(1,595,000)	2. Dredging.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont.)

a. Channels and Harbors (Cont.)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
New Topsail Inlet and Connecting Channels	840,000 (0) (840,000)	840,000 (0) (840,000)	1. None. 2. Dredging.
Pamlico and Tar Rivers	125,000 (0) (125,000)	125,000 (0) (125,000)	1. None. 2. None.
Roanoke River	125,000 (0) (125,000)	125,000 (0) (125,000)	1. None. 2. None.
Rollinson Channel, NC	0 (0) (0)	20,000 (20,000) (0)	1. Environmental requirements. 2. None.
Stumpy Point Bay, NC	0 (0) (0)	20,000 (20,000) (0)	1. Environmental requirements. 2. None.
Waterway Connecting Pamlico Sound w/Beaufort Hbr	0 (0) (0)	20,000 (20,000) (0)	1. Environmental requirements. 2. None.

1442

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont.)

a. Channels and Harbors (Cont.)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Waterway Connecting	0	20,000	
Swanquarter Bay	(0)	(20,000)	1. Environmental requirements.
with Deep Bay	(0)	(0)	2. None.
Wilmington Harbor	6,048,000	5,757,000	
	(381,000)	(518,000)	1. Increase in environmental requirements.
	(5,667,000)	(5,239,000)	2. Dredging.
SOUTH CAROLINA			
AIWW (Charleston)	2,420,000	2,589,000	
	(103,000)	(103,000)	1. None.
	(2,317,000)	(2,486,000)	2. Dredging.
Charleston Harbor	5,426,000	4,609,000	
	(201,000)	(131,000)	1. Decrease in environmental requirements.
	(5,225,000)	(4,478,000)	2. Dredging.
Cooper River,	2,469,000	3,287,000	
Charleston Harbor	(1,849,000)	(2,084,000)	1. Increase in payments to Power Authority.
	(620,000)	(1,203,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont.)

a. Channels and Harbors (Cont.)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Folly River	386,000 (18,000) (368,000)	392,000 (24,000) (368,000)	1. Increase in condition and operations studies. 2. None.
Georgetown Harbor	3,509,000 (192,000) (3,317,000)	3,088,000 (167,000) (2,921,000)	1. Decrease in environmental requirements. 2. Dredging.
Little River Inlet	64,000 (64,000) (0)	40,000 (40,000) (0)	1. Decrease in condition and operations studies. 2. None.
Murrells Inlet	65,000 (65,000) (0)	42,000 (42,000) (0)	1. Decrease in condition and operations studies. 2. None.
Port Royal Harbor	1,192,000 (39,000) (1,153,000)	81,000 (81,000) (0)	1. Increase in condition and operations studies. 2. None.
Shipyard River	428,000 (14,000) (414,000)	395,000 (14,000) (381,000)	1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont.)

a. Channels and Harbors (Cont.)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Town Creek	491,000 (33,000) (458,000)	488,000 (30,000) (458,000)	1. None. 2. None.
Projects Maintained Periodically	1,749,000 (85,000) (1,664,000)	0 (0) (0)	
TOTAL - Channels and Harbors	123,112,000 (9,952,000) (113,160,000)	114,752,000 (9,487,000) (105,265,000)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont.)

b. Locks, Dams, and Canals

The program request of $50,950,000 provides for the operational requirements of seven canalized waterways. Requirements include: operation and ordinary maintenance of project facilities; labor, supplies, materials, and parts for day-to-day functioning; and periodic maintenance, repairs, and replacements.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	 FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
ALABAMA			
Alabama-Coosa Rivers	5,668,000 (1,680,000) (3,988,000)	5,839,000 (1,494,000) (4,345,000)	1. Decrease in condition surveys 2. Dredging.
Black Warrior and Tombigbee Rivers	16,820,000 (5,214,000) (11,606,000)	16,693,000 (5,287,000) (11,406,000)	1. None. 2. Dredging.
ALABAMA AND GEORGIA			
Apalachicola, Chattahoochee and Flint Rivers	4,321,000 (1,279,000) (3,042,000)	4,109,000 (843,000) (3,266,000)	1. Decrease in environmental requirements. 2. Dredging.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont.)

b. Locks, Dams, and Canals (Cont.)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
ALABAMA AND MISSISSIPPI			
Tennessee-Tombigbee Waterway	21,090,000 (11,174,000) (9,916,000)	19,192,000 (11,263,000) (7,929,000)	1. None. 2. Dredging.
FLORIDA			
Apalachicola, Chattahoochee and Flint Rivers (see Alabama and Georgia)			
Okeechobee Waterway	3,933,000 (2,123,000) (1,810,000)	4,276,000 (2,238,000) (2,038,000)	1. None. 2. Dredging.
Oklawaha River	127,000 (15,000) (112,000)	155,000 (7,000) (148,000)	1. Decrease in environmental requirements. 2. None.

1447

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. Navigation (Cont.)

b. Locks, Dams, and Canals (Cont.)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
NORTH CAROLINA			
Cape Fear River above Wilmington	1,200,000 (462,000) (738,000)	686,000 (462,000) (224,000)	1. None. 2. None.
TOTAL - Locks, Dams, and Canals	53,159,000 (21,947,000) (31,212,000)	50,950,000 (21,594,000) (29,356,000)	
TOTAL - NAVIGATION	176,271,000 (31,899,000) (144,372,000)	165,702,000 (31,081,000) (134,621,000)	

1448

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control

a. Reservoirs

The program request of $5,768,000 provides for operation and maintenance of four reservoirs.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
MISSISSIPPI			
Okatibbee Lake	1,773,000 (1,288,000) (485,000)	1,693,000 (1,178,000) (515,000)	1. None. 2. None.
NORTH CAROLINA			
B. Everett Jordan Dam and Lake	1,237,000 (974,000) (263,000)	1,128,000 (932,000) (196,000)	1. None. 2. None.
Falls Lake	1,070,000 (824,000) (246,000)	1,043,000 (908,000) (135,000)	1. Increase in archeological and cultural resources. 2. None.
W. Kerr Scott Dam and Reservoir	2,848,000 (1,053,000) (1,795,000)	1,904,000 (1,120,000) (784,000)	1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (Cont.)

a. Reservoirs (Cont.)

Scheduled Reservoir Operations

The program request of $90,000 provides for monitoring reservoir operations on the Coosa River, AL.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
ALABAMA			
Scheduled Reservoir Operation	80,000 (80,000) (0)	90,000 (90,000) (0)	1. Increase in condition and operations studies. 2. None.
TOTAL - Reservoirs	7,008,000 (4,219,000) (2,789,000)	5,858,000 (4,228,000) (1,630,000)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (Cont.)

b. Channel Improvements, Inspections, and Miscellaneous Maintenance

The program request of $9,713,000 provides for the maintenance requirements of two local flood protection projects.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
FLORIDA			
Central and Southern Florida	9,846,000 (4,969,000) (4,877,000)	9,513,000 (5,635,000) (3,878,000)	1. Increase effort on major rehabilitation report. 2. Spillway and culvert repairs.
MISSISSIPPI			
East Fork, Tombigbee River	203,000 (0) (203,000)	200,000 (0) (200,000)	1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. Flood Control (Cont.)

b. Channel Improvements, Inspections, and Miscellaneous Maintenance (Cont.)

Inspection of Completed Works

The $174,000 requested in FY 1997 supports inspection at 118 flood control projects constructed by the Corps and operated and maintained by non-Federal interests.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Alabama	19,000	35,000	
Florida	51,000	50,000	
Georgia	40,000	40,000	
North Carolina	20,000	22,000	
South Carolina	27,000	27,000	
	---	---	
Inspection of Completed Works	157,000 (157,000) (0)	174,000 (174,000) (0)	1. Additional number of inspections in FY 1997. 2. None.
TOTAL - Channel Improvements, Inspections, & Misc Maintenance	10,206,000 (5,126,000) (5,080,000)	9,887,000 (5,809,000) (4,078,000)	
TOTAL - FLOOD CONTROL	17,214,000 (9,345,000) (7,869,000)	15,745,000 (10,037,000) (5,708,000)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

3. Multiple Purpose Power

The program request of $77,579,000 provides for the operation requirements of 13 multiple purpose projects. Requirements include: operation and ordinary maintenance of project facilities; labor, supplies, materials, and parts for day-to-day functioning; and periodic maintenance, repairs and replacements. The requested amount also includes application of special recreation use fees for recreation areas.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
ALABAMA			
Millers Ferry Lock and Dam - William "Bill" Dannelly Reservoir	5,156,000 (1,825,000) (3,331,000)	6,647,000 (1,997,000) (4,650,000)	1. None. 2. None.
Robert F. Henry Lock and Dam - R.E. "Bob" Woodruff Lake	3,688,000 (1,450,000) (2,238,000)	4,491,000 (1,580,000) (2,911,000)	1. None. 2. Replace Unit 4 stator windings.
Walter F. George Lock and Dam	6,434,000 (3,192,000) (3,242,000)	5,972,000 (2,636,000) (3,336,000)	1. Decrease in operation of service facilities. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

3. Multiple Purpose Power (Cont.)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
FLORIDA			
Jim Woodruff Lock and Dam	5,111,000 (2,554,000) (2,557,000)	5,040,000 (2,775,000) (2,285,000)	1. None. 2. None.
GEORGIA			
Allatoona Lake	5,894,000 (2,807,000) (3,087,000)	4,514,000 (2,030,000) (2,484,000)	1. Decrease in environmental requirements. 2. None.
Buford Dam - Lake Sidney Lanier	7,377,000 (2,996,000) (4,381,000)	6,649,000 (3,026,000) (3,623,000)	1. None. 2. None.
Carters Lake	5,218,000 (2,023,000) (3,195,000)	4,324,000 (2,121,000) (2,203,000)	1. None 2. None.
Hartwell Lake	10,364,000 (5,410,000) (4,954,000)	9,441,000 (5,406,000) (4,035,000)	1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

3. Multiple Purpose Power (Cont.)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
J. Strom Thurmond Lake	9,480,000 (4,922,000) (4,558,000)	10,378,000 (5,108,000) (5,270,000)	1. None. 2. Replace line relays and power transformers.
Richard B. Russell Dam and Lake	7,307,000 (3,835,000) (3,472,000)	6,357,000 (3,286,000) (3,071,000)	1. None. 2. None.
Walter F. George L & D (see Alabama)			
West Point Lake	5,114,000 (2,235,000) (2,879,000)	4,911,000 (2,178,000) (2,733,000)	1. None. 2. None.
NORTH CAROLINA			
John H. Kerr Dam and Reservoir (see Virginia)			
SOUTH CAROLINA			
Hartwell Lake (see Georgia)			
J. Strom Thurmond Lake (see Georgia)			
Richard B. Russell (see Georgia)			

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

3. Multiple Purpose Power (Cont.)

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
VIRGINIA			
John H. Kerr Dam and Reservoir	8,770,000 (4,796,000) (3,974,000)	6,652,000 (5,222,000) (1,430,000)	1. None. 2. Earth dike modifications.
Philpott Lake	2,266,000 (1,417,000) (849,000)	2,203,000 (1,456,000) (747,000)	1. None. 2. None.
TOTAL - Multiple Purpose Projects	82,179,000 (39,462,000) (42,717,000)	77,579,000 (38,801,000) (38,778,000)	

1456

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

4. Protection of Navigation

The program request of $3,980,000 provides for accomplishing the work essential to the eradication of aquatic plant growth for navigable waters in Florida.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Removal of Aquatic Growth	3,700,000	3,980,000	
	(25,000)	(51,000)	1. Increase in operating equipment.
	(3,675,000)	(3,929,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

4. Protection of Navigation

Project Condition Surveys

The program request of $974,000 provides for project condition surveys for navigation projects for which maintenance is not scheduled in the budget year.

STATE Project Name	ESTIMATED OBLIGATIONS FY 1996 ($) Total (Operations) (Maintenance)	FY 1997 ($) Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reason for Change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Alabama	400,000	392,000	
Florida	460,000	500,000	
North Carolina	59,000	59,000	
South Carolina	23,000	23,000	
	---	---	
Project Condition Surveys	942,000	974,000	
	(942,000)	(974,000)	1. None.
	(0)	(0)	2. None.
TOTAL - Protection of Navigation	4,642,000	4,954,000	
	(967,000)	(1,025,000)	
	(3,675,000)	(3,929,000)	
GRAND TOTAL - SOUTH ATLANTIC DIVISION	280,306,000	263,980,000	
	(81,673,000)	(80,944,000)	
	(198,633,000)	(183,036,000)	

1458

STATUS REPORT OF CIVIL WORKS ACTIVITIES
IN THE SOUTH PACIFIC DIVISION
FISCAL YEAR 1997
BRIGADIER GENERAL BRUCE K. SCOTT

REGIONAL OVERVIEW

The Army Corps of Engineers Civil Works Program is vibrantly productive in the pacific southwest, an area approximating one-fifth of the contiguous 48 states. Our continuously expanding population creates water resource challenges and opportunities as we strive to balance the needs of a growing economic climate for the citizens we serve with the sometimes competing needs for a healthy, sustainable environment for man and the bounties of nature.

Within our beautiful region are some of our Nation's most productive and fragile ecosystems. I am extremely proud of the progress we have made in protecting and enhancing environmentally important resources since I last reported to this committee. We have essentially completed construction of the Sonoma Baylands project, returning more than 300 acres of previously farmed land to an environmentally productive salt marsh in the northern portion of San Francisco Bay. Much of this was achieved through the beneficial use of dredged materials. We also initiated restoration of nearly 3,300 acres of wetlands within the Yolo Bypass, near Sacramento, which we expect to complete this year. These two projects will return 3,600 acres of relatively marginal farm land to productive wetland outputs, more than comparable environmental enhancements produced by any other Federal, State, or local agency in our region. We are also leading the effort in Sonoma county to develop a vernal pool mitigation plan that will allow orderly development to proceed while still preserving these important resources.

In addition to our notable environmental restoration activities, I am pleased to report that our completed flood control projects prevented over $1.6 billion in flood damages during the floods which afflicted our region in January and March of 1995. Despite these savings, the storms were sufficiently intense to inflict a combined $1.8 billion in flood damages on areas with inadequate protection. These floods demonstrated, once again, that our growing population will continue to require our best efforts to improve our region's flood damage prevention infrastructure.

The region's need for continued investments in flood damage prevention is matched by the requirement for continuous improvement of our navigation system. In 1995, California ports generated direct customs receipts of more than $3.5 billion for the Nation's treasury. Located as we are on the west coast, we must provide adequate harbors to handle the Nation's increasing trade with pacific rim nations. This is occurring while the world's navigation

industry is striving for even greater efficiencies by increasing the size and draft of the vessels that comprise their merchant fleets.

In our efforts to meet our region's needs for timely improvements to our navigation and flood control infrastructure, we continue to find ways to improve our processes. For example, from the day our Los Angeles District commander signed the feasibility cost sharing agreement for the Long Beach Harbor study, to the day he completed and submitted his report to me, less than thirteen months elapsed. I forwarded that report to Washington last November and design is now underway. This is the fastest favorable feasibility report ever before completed by the South Pacific Division or by the Corps for that matter.

Perhaps the greatest measure of the need for Federal investments in our region's flood control and navigation infrastructure development has been the willingness of our non-Federal partners to contribute scarce state and local dollars towards their share of study and project costs. In 1995, our partners contributed over $101 million, and we expect them to contribute an additional $137 million this year. Mr Chairman, I must stress that these contributions are occurring at a time when our region still is struggling to recover from recent economic difficulties and State and local financial resources are extremely strained.

FISCAL YEAR 1997 BUDGET

The President's budget includes $220 million to continue making progress towards meeting our region's critical water resources development needs. These funds will allow progress on 125 projects and studies throughout our region.

GENERAL INVESTIGATIONS

For general investigations, the budget proposes $22.7 million for Fiscal Year 1997 for 53 projects and studies. These funds will allow initiation of one new reconnaissance study, continuation of 12 additional reconnaissance studies, continuation of 31 feasibility studies, and progress on design of nine projects. We will complete three of the feasibility studies, and design of three of the projects, readying them for construction as funds are available.

The new activity proposed in the budget is a reconnaissance study of Channel "a" in North Las Vegas, Nevada. The Las Vegas area is the most rapidly growing metropolitan area in the United States, increasing in population at a rate exceeding 6,000 new permanent residents a month. The study area is in the midst of this development.

CONSTRUCTION GENERAL

The budget includes $125.6 million for construction general to initiate funding of two new construction projects and continued progress on 20 projects already underway.

UPPER SACRAMENTO AREA LEVEE RECONSTRUCTION

Initial construction funding of $300,000 for the Upper Sacramento River Levee Restoration project will commit the Federal Government to insuring the existing levees in the upper reach of the Sacramento River flood control project, first authorized in 1917, are able to contain the flows for which the project was designed and constructed. Construction is scheduled for completion by 2004.

SAN LORENZO RIVER, CALIFORNIA

Somewhat similarly, $200,000 is included for our other new construction start, on the San Lorenzo River in downtown Santa Cruz, California. Because our original project underestimated the sediment load carried by this stream, the proposed modification will permit the existing flood control project on the San Lorenzo River to carry 100-year flows through Santa Cruz. Construction is scheduled for completion in 2003.

SANTA ANA RIVER, CALIFORNIA

Almost 40% of our request, $51 million, is for ongoing construction of the Santa Ana River project in southern California. We've made impressive progress on the Seven Oaks Dam feature of the project since last year - as the impervious core of the dam has started rising above ground level. Completion of the downstream channel portion of the project will be delayed because of future budgetary imperatives, but we are continuing to make progress during the current year.

RILLITO RIVER, ARIZONA

The budget provides $4.4 million for completion of the Rillito River, Arizona project. This is a rather innovative project, using soil cement protection to stabilize a deeply incised stream which historically has freely meandered over what is now a rapidly developing alluvial flood plain.

OAKLAND HARBOR, CALIFORNIA

In northern California, the budget includes $4.3 million for completion of deepening the Oakland Harbor project from 35 to 42 feet. This project permits the Port of Oakland to continue meeting the needs of existing commerce.

TROPICANA AND FLAMING WASHES, NEVADA

The budget also included $10.3 million for continued progress on the Tropicana and Flamingo Washes, Nevada project, another example of stabilizing alluvial flood plains in a

rapidly developing desert area. Work is currently underway on the Red Rock Detention Basin and the requested funds will allow initiation of construction of Tropicana dam and the Flamingo diversion channel.

OPERATIONS AND MAINTENANCE

The budget includes $71.7 million for the continued operation and maintenance of 28 navigation and 20 flood control projects within our region. The request is adequate to provide for the approved needs within our region.

PROGRAM EXECUTION

Mr. Chairman, members of the committee, I can not understate the importance that my division and districts place on program and project execution. We have an enviable record of accomplishment in seeing our studies move successfully from one phase to the next. Project execution, with satisfied customers, is our top priority. In Fiscal Year 1995, my districts expended 82% of the total amount you made available to us, and 73% of construction general funds. This was an improvement over our 1994 performance. We expect to continue improving this year.

COLLOCATION

The South Pacific Division has committed itself to being efficient, effective, and professional. We are collocating the Division headquarters with our San Francisco District. We will complete this move by the end of June 1996 - and will reduce both the district's and the division's operating costs by sharing facilities and services which make sense. We will strive for other efficiencies to make us more responsive and more cost effective. Another advantage of our move is that we will enjoy state-of-the art communications facilities - compared to our current physical limitations - and will be poised to move into the 21st century as a cost efficient, committed, professional organization which our customers will choose as their preferred provider of Federal services for environmentally sustainable water resource development.

U. S. ARMY CORPS OF ENGINEERS
CIVIL WORKS PROGRAM

CONGRESSIONAL SUBMISSION
FISCAL YEAR 1997

SOUTH PACIFIC DIVISION

Budgetary information will not be released outside the Department of the Army until 18 March 1996.

JUSTIFICATION OF ESTIMATES FOR CIVIL FUNCTIONS ACTIVITIES
DEPARTMENT OF THE ARMY, CORPS OF ENGINEERS
FISCAL YEAR 1997

SOUTH PACIFIC DIVISION

Table of Contents

	Page No.
Surveys:	
Alamo Lake, AZ	49
Central Basin Groundwater Project, CA	29
Gila River and Tributaries, North Scottsdale Drainage Area, AZ	6
Gila River, Santa Cruz River Basin	8
Gila River, Tortolita Drainage Area, AZ	9
Imperial County Watershed, CA	30
LACDA, Water Conservation and Supply (Hansen and Lopez Dams), CA	31
LACDA, Water Conservation and Supply (Santa Fe and Whittier), CA	32
Lower Las Vegas Wash Wetlands, NV	46
Lower Truckee River Pyramid Lake Pauite Tribe	47
Lower Truckee River Washoe County	48
Marina del Rey and Baloona Creek, CA	3
Napa River, Salt Marsh Restoration, CA	33
Newport Bay Harbor, CA	34
Northern California Streams, Cache Creek Environemtal Restoration, CA	35
Northern California Streams, Middle Creek, CA	36
Northern California Streams, Sacramento River Fish Migration, CA	37
Northern California Streams, Winters and Vicinity, CA	11
Northern California Streams, Yuba River Basin, CA	12
North Las Vegas, Channel "A"	2
Peninsula Beach, CA	27
Pillar Point Harbor (Deepening), CA	4
Port Hueneme, CA	5
Prado Basin Water Supply, CA	38

SOUTH PACIFIC DIVISION

Table of Contents

Provo and Vicinity, UT 25
Rancho Palos Verdes 12
Rio de Flag 10
Rio Salado, Salt River, AZ 28
Russian River, Ecosystem Restoration, CA 39
Sacramento - San Joaquin Delta, CA 40
Sacramento - San Joaquin Delta, Little Holland Tract, CA 42
Sacramento - San Joaquin Delta, Western Delta Islands, CA 43
San Antonio Creek, CA 13
San Joaquin River Basin, Arroyo Pasajero (Fresno County), CA 14
San Joaquin River Basin, Pine Flat Dam, Fish and Wildlife Habitat Restoration, CA 44
San Joaquin River Basin, Stockton Metropolitan Area 17
San Joaquin River Basin, South Sacramento County Streams, CA 16
San Joaquin River Basin, Tule River 18
San Juan and Aliso Creeks Watershed Management, CA 45
Santa Barbara County Streams, Lower Mission Creek, CA 19
Seven Oaks and Prado Dams Water Conservation, CA 20
Truckee Meadows, NV 24
Upper Guadalupe River, CA 21
Upper Penitencia Creek, CA 22
Ventura and Santa Barbara County Shoreline, CA 27
Whitewater River Basin, CA 23

Preconstruction Engineering and Design:

American River Watershed, CA 54
Crescent City Harbor, CA 51

JUSTIFICATION OF ESTIMATES FOR CIVIL FUNCTIONS ACTIVITIES
DEPARTMENT OF THE ARMY, CORPS OF ENGINEERS
FISCAL YEAR 1997

SOUTH PACIFIC DIVISION

Table of Contents

Kaweah River, CA 56
Napa River, CA 57
Pajaro River at Watsonville, CA 59
Port of Long Beach, CA 52
Seven Oaks Dam Water Conservation, CA 60
Tucson Drainage Area, AZ 53
Winters and Vicinity, CA 61

Construction:

Clifton, AZ 92
Coyote and Berryessa Creeks, CA 104
Guadalupe River, CA 112
Los Angeles County Drainage Area, CA 118
Los Angeles Harbor, CA 64
Lower Sacramento Area Levee Reconstruction, CA 123
Marysville/Yuba City Levee Reconstruction, CA 129
Merced County Streams, CA 134
Mid-Valley Area Levee Reconstruction, CA 141
Oakland Harbor, CA 70
Richmond Harbor, CA 75
Rillito River, AZ 98
Sacramento River Bank Protection Project, CA 147
Sacramento River Flood Control Project
(Glenn-Colusa Irrigation District), CA 159
San Lorenzo River, CA 164
San Francisco Bay to Stockton, CA 80

SOUTH PACIFIC DIVISION

Table of Contents

Santa Ana River Mainstem, CA	169
Santa Paula Creek, CA	178
Surfside - Sunset and Newport Beach, CA	86
Tropicana and Flamingo Washes, NV	194
Upper Sacramento Area Levee Reconstruction, CA	183
West Sacramento, CA	189
Operation and Maintenance:	201

Justification of Estimate for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

SUMMARY, SOUTH PACIFIC DIVISION

	FY 1996 Allocation	FY 1997 Request	Increase or Decrease
General Investigations			
Surveys	$11,277,000.00	$15,528,000.00	$4,251,000.00
Preconstruction Engineering and Design	$5,376,000.00	$7,199,000.00	$1,823,000.00
Subtotal General Investigations	$16,653,000.00	$22,727,000.00	$6,074,000.00
Construction General			
Construction	$142,891,000.00	$125,600,000.00	($17,291,000.00)
Operations and Maintenance			
Project Operations	$31,386,000.00	$32,562,000.00	$1,176,000.00
Project Maintenance	$42,488,000.00	$39,109,000.00	($3,379,000.00)
Subtotal Operations and Maintenance	$73,874,000.00	$71,671,000.00	($2,203,000.00)
GRAND TOTAL, SOUTH PACIFIC DIVISION	$233,418,000.00	$219,998,000.00	($13,420,000.00)

18 March 1996

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
1. SURVEYS - NEW a. Navigation Studies: None					
b. Flood Damage Prevention Stuties: The amount of $100,000 is requested in Fiscal Year 1997 to initiate one flood damage prevention reconnaissance study.					
Nevada					
North Las Vegas, Channel "A"	400,000	0	0	100,000	300,000

The study area is located along the western tributary of the Las Vegas Wash, from the Interstate Highway 15 crossing to Lake Mead Boulevard within the city of North Las Vegas, in Clark County, Nevada. Most of the channel in the study area is unimproved, and the remaining portion is only partially improved. The "A" Channel has a limited capacity and is subject to extreme flow velocities during storm runoff. Development associated with the rapid urbanization in the area has encroached upon the limited capacity channel. The area is subject to flash flooding, and protection is needed to prevent damages to two public elementary schools, numerous residential neighborhoods and businesses, and to provide access for emergency vehicles. In addition, several major road crossings are undersized and lack the capacity to pass flood flows safely. A solution is critical to prevent the recurrence of previous flooding problems over the past 20 years which have caused several fatalities, considerable property damage, and impaired emergency access. The study will evaluate the damage potential of flooding and overflows within the study area to determine whether there is Federal interest in proceeding to the feasibility phase. The City of North Las Vegas and Clark County Regional Flood Control District expressed support for the study in August 1994, understand the two-phase planning process, and are willing to participate in 50-50 cost sharing of feasibility phase studies. The funds requested for Fiscal Year 1997 will be used to initiate the reconnaissance phase of the study at full Federal expense. A completion date is being determined for this reconnaissance study.

TOTAL FLOOD DAMAGE PREVENTION STUDIES	400,000	0	0	100,000	300,000

c. Shoreline Protection Studies: None

d. Special Studies: None

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
1. SURVEYS - NEW: (Cont'd)					
e. Comprehensive Studies: None					
f. Project Review Studies: None					
TOTAL SURVEYS - NEW	400,000	0	0	100,000	300,000
2. SURVEYS - CONTINUING:					
a. Navigation Studies: The amount of $650,000 is requested to continue three studies in Fiscal Year 1997.					
California					
Marina del Rey and Ballona Creek	950,000	391,000	148,000	200,000	211,000

Marina del Rey is located in Los Angeles County, California, about 20 miles southwest of the city of Los Angeles. The existing Federal navigation project for Marina del Rey, formerly Playa del Rey Inlet and Harbor, consists of two jetties and navigation channels ranging from 15 to 20 feet in depth and a depth of 12 feet in the interior channels. Marina del Rey is home port to about 15 commercial fishing boats and is used by 50 other transit boats with a total fish annual catch of nearly 10 million pounds valued at approximately $10 million annually. There are also about ten charter boat operations and five tour boat operations that are used by over 100,000 people each year. The harbor contains over 6,000 berths, primarily servicing recreational craft. An offshore breakwater was added to the Federal project in 1963. The Corps has performed periodic maintenance dredging to maintain channel depths. Shoaling of the navigation channels is caused by the littoral movement of sediment along the coast as well as material transported out of the Ballona Creek flood control channel. Disposal of the material from Ballona Creek is complicated due to the nature of the contaminants found in the material. In August 1992, Los Angeles County indicated it is concerned that shoaling and the hazards associated with the contaminated material will impact navigation in the harbor. There is strong support for Federal investigation of harbor modification, as the complications surrounding disposal of the material in the existing navigation channels are impeding formal maintenance responsibilities and may threaten not just existing but future navigational usage of the harbor. The County of Los Angeles, the local sponsor, expressed support for the study in August 1992, understands the two-phase planning

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

a. Navigation Studies: California, Marina del Rey and Ballona Creek (Cont'd)

process, and is willing to participate in 50-50 cost sharing of feasibility phase studies. The Feasibility Cost-Sharing Agreement is scheduled to be signed in June 1996.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase at full Federal expense, and if the reconnaissance report is certified to be in accord with policy, to continue into the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,050,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,475,000
Reconnaissance Phase (Federal)	425,000
Feasibility Phase (Federal)	525,000
Feasibility Phase (Non-Federal)	525,000

The reconnaissance phase is scheduled for completion in June 1996. A completion date is being determined for this feasibility study.

Pillar Point Harbor (Deepening), CA	910,000	114,000	281,000	250,000	265,000

The study area is located 20 miles south of San Francisco, California in the northern portion of Halfmoon Bay. The protective harbor is formed with two Federally-constructed rubble-mound breakwaters, the west breakwater 3,670 ft long and the east breakwater 4,420 feet long, completed in 1961. Construction of a 1,050-ft extension to the west breakwater to alleviate wave surge in the harbor was completed by the Corps in 1967. Water depths within the harbor range from 5 to 20 feet mean lower water datum. The average annual commercial fish catch landed at Pillar Point Harbor for the years 1988 through 1992 was over 3,600 tons, valued at $5.5 million per year. The harbor is the home port for an extensive commercial fishing fleet and for the San Mateo Harbor District Search, Rescue and Fishing Patrol which averages about 100 rescues per year. Over a period of 30 years Pillar Point Harbor has gradually shoaled and the local sponsor has indicated the shoaling rate has increased in recent years with navigation within the harbor beginning to experience maneuvering difficulties and operational safety hazards. A study is needed to investigate the feasibility of providing increased harbor and entrance

23-577 96 – 47

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

a. Navigation Studies: California, Pillar Point Harbor (Deepening) (Cont'd)

depths for improving commerce and navigational safety. The San Mateo County Harbor District, the local sponsor, expressed support for the study in October 1994 and January 1995, understands the two-phase planning process, and is willing to participate in 50-50 cost sharing of feasibility phase studies. A Feasibility Cost Sharing Agreement is scheduled to be signed in July 1996.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase of the study at full Federal expense, and if the reconnaissance report is certified to be in accord with policy, to continue into the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The estimated cost of the feasibility phase is $1,050,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,435,000
Reconnaissance Phase (Federal)	385,000
Feasibility Phase (Federal)	525,000
Feasibility Phase (Non-Federal)	525,000

The reconnaissance phase is scheduled for completion in July 1996. A completion date is being determined for this feasibility study.

Port Hueneme	990,000	550,000	222,000	200,000	18,000

The study area is located about 65 miles northwest of Los Angeles in Ventura County, California. The study will investigate modifications to the Federal deep draft navigation project including deepening the existing channel and turning basin and other navigation improvements required for port expansion. Waterborne commerce through Port Hueneme is estimated to have been over 748,000 tons in 1989, consisting primarily of bulk and roll-on cargo. Larger and deeper draft vessels are beginning to use the port but must be light loaded and wait for adequate berths, due to other port development constraints. The Navy Engineering Facilities, located at Port Hueneme, has also indicated the need for deeper channels to accommodate larger vessels expected to be used in their operations. The Oxnard Harbor District, the local sponsor, expressed support for the study in December 1993, understands the two-phase planning process, and is willing to participate in 50-50 cost sharing of feasibility phase studies. The Feasibility Cost-Sharing Agreement was signed in January 1996.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
a. Navigation Studies: California, Port Hueneme (Cont'd)					

Fiscal Year 1996 funds are being used to initiate the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase. The preliminary estimated cost of the feasibility phase is $850,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,415,000
Reconnaissance Phase (Federal)	565,000
Feasibility Phase (Federal)	425,000
Feasibility Phase (Non-Federal)	425,000

The reconnaissance phase was completed in January 1996. A completion date is being determined for this feasibility study.

TOTAL NAVIGATION STUDIES	2,850,000	1,055,000	651,000	650,000	494,000
b. Flood Damage Prevention Studies: The amount of $6,967,000 is requested to continue sixteen studies and complete three studies in Fiscal Year 1997.					
Arizona					
Gila River, North Scottsdale Drainage Area	1,750,000	290,000	420,000	300,000	740,000

The majority of the study area is located in the northeast Phoenix, Arizona metropolitan area, primarily in the city of Scottsdale, and is bound on the east by the McDowell Mountains. This investigation, which is specifically addressing the flooding problems of the North Scottsdale Drainage Area, was initially funded as the Gila River, McDowell Mountains study as provided in the Energy and Water Development Appropriations Act, 1995. The watershed affecting the study area eventually drains into the Central Arizona Project Canal to the south. The canal also separates the area into upper and lower watersheds. In the upper watershed, frequent storm events cause damage to several large residential subdivisions and public improvements. As many as 1,000 homes, with an average price of more than $200,000, are estimated to be located within the

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

b. Flood Damage Prevention Studies: Arizona, Gila River, North Scottsdale Drainage Area (Con't)

designated high hazard flood zones in the study area. The upper watershed consists primarily of low capacity washes that spread over alluvial fan floodplains. These floodplains are hazardous areas because they have unpredictable floodflow patterns, and the natural channels are typically capable of containing only two- to five-year flood events. Floodflows have the potential of moving across these fan areas swiftly and impose a threat to life and property. The Federal Emergency Agency has designated a large portion of the remaining undeveloped land as high hazard zones. The study area is experiencing problems with rapid development and expansion in these floodplains. Special restrictions and constraints have been placed on future development in these designated high hazard zones. Flood insurance is also required. There is an urgent need for a floodwater management plan to reduce the flood hazard and the difficulties these conditions impose. The study will evaluate the potential of managing peak flows, reducing inundation damages, integrating flood control with planned land use change and transportation, and maximizing public benefits including environmental, recreational and cultural values. The City of Scottsdale, the City of Phoenix and the Flood Control District of Maricopa county, the local sponsors, expressed support for the study in March 1994, understand the two-phase planning process, and are willing to participate in 50-50 cost sharing of feasibility phase studies. The Feasibility Cost Sharing Agreement is scheduled to be signed in August 1996.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase of the study at full Federal expense, and if the reconnaissance report is certified to be in accord with policy, to continue into the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The preliminary cost estimate of the feasibility phase is $2,100,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,800,000
Reconnaissance phase (Federal)	700,000
Feasibility phase (Federal)	1,050,000
Feasibility phase (Non-Federal)	1,050,000

The reconnaissance phase is scheduled for completion in August 1996. A completion date is being determined for this feasibility study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
b. Flood Damage Prevention Studies: Arizona (Con't)					
Gila River, Santa Cruz River Basin	825,000	300,000	85,000	290,000	150,000

The study area is located in southeast Arizona and includes a drainage area of 8,200 square miles, from the Mexican border to the Santa Cruz River's confluence with the Gila River, just downstream of Phoenix, Arizona. The river flows through the city of Tucson, the second largest city in Arizona. Past studies have addressed subbasins of the Santa Cruz River, but no study to date has addressed the overall water resource related concerns of the basin, including ecological, hydrologic, economic, and other issues. There is a need to develop a comprehensive basin wide hydrologic model to assure uniform technical information will be available for the development of the area's water resources, and to provide a basis for the proper planning and engineering of future projects. This study will address those issues and identify follow-up specific project oriented studies addressing flood control, environmental restoration, water conservation and related purposes. Strong local support has been expressed for this study. The Pima County Flood Control District, the local sponsor, expressed support for the study in October 1995, understands the two-phase planning process, and is willing to participate in 50-50 cost sharing of feasibility phase studies. The Feasibility Cost-Sharing Agreement is scheduled to be signed in August 1996.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase of the study at full Federal expense, and if the reconnaissance report is certified to be in accord with policy, to continue into the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $900,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,275,000
Reconnaissance Phase (Federal)	375,000
Feasibility Phase (Federal)	450,000
Feasibility Phase (Non-Federal)	450,000

The reconnaissance phase is scheduled for completion in August 1996. A completion date is being determined for this feasibility study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
b. Flood Damage Prevention Studies: Arizona (Con't)					
Gila River, Tortolita Drainage Area	1,250,000	300,000	210,000	200,000	540,000

The study area is located in the northern portion of the Tucson metropolitan area in southern Arizona and includes approximately 27 square miles of watershed. The Tortolita Drainage Area is bounded by Interstate Highway 10 to the west, Canada del Oro Wash to the south, and US Highway 89 to the east. The watershed, which drains into the Santa Cruz River, consists primarily of low capacity washes that spread over alluvial fan flood plains. These flood plains are hazardous areas since they have unpredictable floodflow patterns, and the natural channels are typically capable of containing only two to five-year flood events. Floodflows have the potential for moving across the alluvial fan areas swiftly, and they impose a threat to life and property. Rapid growth and development is occurring in the study area and is encroaching upon the limited capacity of the area's natural drainage channels. A flood water management plan is needed that will control peak flows, partially or completely remove the alluvial fan flooding hazard, utilize and retain as much of the existing environment as possible, and effectively integrate with the existing infrastructure. The study will address the feasibility of providing structural and nonstructural solutions to alleviate the flooding problem. Studies will concentrate on evaluating measures to reduce flood damages during seasonal storms. The Pima County Flood Control District expressed support for the study in April 1994, understands the two phase planning process, and is willing to participate in 50-50 cost sharing of feasibility phase studies. The Feasibility Cost Sharing Agreement is scheduled to be signed in July 1996.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase of the study at full Federal expense, and if the reconnaissance report is certified to be in accord with policy, to continue into the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,500,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$2,000,000
Reconnaisance Phase (Federal)	500,000
Feasibility Phase (Federal)	750,000
Feasibility Phase (Non-Federal)	750,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
b. Flood Damage Prevention Studies: Arizona, Gila River, Tortolita Drainage Area (Con't)					
The reconnaissance phase is scheduled for completion in July 1996. A completion date is being determined for this feasibility study.					
Rio de Flag	1,865,000	0	250,000	500,000	1,115,000

The Rio de Flag study area is located partly within the city of Flagstaff and entirely within Coconino County, Arizona. The area is subject to flooding from Rio de Flag and Sinclair Wash. The urban areas subject to flooding are privately owned, including commercial development in downtown Flagstaff as well as residential and commercial areas in the downstream reaches of the study area. Floods on Rio de Flag and Sinclair Wash have occurred in 1888, 1896, 1903, 1920, 1938, 1983, and 1993. Flooding events are a result of intense rainfall or a combination of heavy warm rainfall on melting snowpack. The State of Arizona has projected that a 100-year storm event would cause approximately $98 million in damages. The study will address flood damage prevention and environmental restoration. The study area also includes a large historical area in downtown Flagstaff. This effort will require extensive coordination with city and state agencies. The City of Flagstaff, the local sponsor, expressed support for the study in October 1994, understands the two-phase planning process, and is willing to participate in 50-50 cost sharing of feasibility phase studies. The Feasibility Cost-Sharing Agreement is scheduled to be signed in August 1997.

Fiscal Year 1996 funds are being used to initiate the reconnaissance phase of the study at full Federal expense. The funds requested for Fiscal Year 1997 will be used to complete the reconnaissance phase, and if the report is certified to be in accord with policy to continue into the feasibility phase of the Study. The preliminary estimated cost of the feasibility phase is $2,250,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,990,000
Reconnaissance Phase (Federal)	740,000
Feasibility Phase (Federal)	1,125,000
Feasibility Phase (Non-Federal)	1,125,000

The reconnaissance phase is scheduled for completion in August 1997. A completion date is being determined for this feasibility study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
b. Flood Damage Prevention Studies: (Con't)					
California					
Northern California Streams, Winters and Vicinity	781,000	541,000	210,000	30,000	0

The study area is in southwestern Yolo County approximately 30 miles west of Sacramento, California. The city of Winters is located along Putah Creek and Dry Creek and is bordered to the north by Moody Slough and Chickahominy Slough. Winters, population 5,000, floods every two to five years due primarily to inadequate flow capacity of Moody Slough. Construction improvements of County Road 89 and Interstate Highway 505 have increased flooding problems in the area and have subjected portions of Winters to flooding by preventing naturally occurring drainage to the east of Winters. Flooding has also occurred from Dry Creek, Putah Creek, Chickahominy Slough and multiple local canals. During the January and March 1995 floods, determined to have been roughly 20-year flood events, over 40 homes were inundated and the Highway 128 bridge was damaged. The 1980 flood covered more than 12,000 acres and flooding during extended rainstorms has caused damage to structures, streets and roads, agricultural land, equipment and crops. The area to the northeast of Winters is susceptible to significant damage as development occurs in areas designated for light and heavy industrial uses. Potential projects include detention basins combined with diversion channels, realignment of canals and non-structural measures including floodproofing and raising of structures. The City of Winters, the local sponsor, signed the the Feasibility Cost Sharing Agreement in January 1996.

Fiscal Year 1996 funds are being used to continue the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to complete the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $480,000 which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,021,000
Reconnaissance Phase (Federal)	541,000
Feasibility Phase (Federal)	240,000
Feasibility Phase (Non-Federal)	240,000

The reconnaissance phase was completed in January 1996. The feasiblity study is scheduled for completion in November 1996.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
b. Flood Damage Prevention Studies: California (Cont'd)					
Northern California Streams, Yuba River Basin	2,320,000	1,350,000	150,000	120,000	700,000

The study area is located between the Feather and American River Basins in northern California, primarily in Sutter and Yuba Counties approximately 50 miles north of Sacramento. The principal urban centers within the study area include Marysville and Yuba City with current populations of 13,000 and 34,000, respectively. The Marysville and Yuba City area has experienced six major floods which include the floods of November 1950, December 1955 and December 1964 through January 1965 which were the most widespread and destructive. Record floodflows occurred with the 1955 flood, and resulted in the loss of 37 lives when a levee on the Feather River south of Yuba City failed. Modifications to flood protection facilities in the intervening 10 years, including partial completion of the State's Oroville Dam project, helped to prevent damage during the 1964-65 flood that may well have exceeded that caused by the 1955 flood event. Despite existing flood protection to the area, it is still vulnerable to catastrophic flooding as demonstrated by the flood in February 1986. During the February 1986 flood, the south levee on the Yuba River failed, inundating the towns of Linda and Olivehurst to depths of about 10 feet. Over 24,000 people were evacuated and damages were estimated at $95 million. The California Reclamation Board, the local sponsor, signed the Feasibility Cost Sharing Agreement in September 1991.

Fiscal Year 1996 funds are being used to continue the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The estimated cost of the feasibility phase is $3,600,000 which is being shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$4,120,000
Reconnaissance Phase (Federal)	520,000
Feasibility Phase (Federal)	1,800,000
Feasibility Phase (Non-Federal)	1,800,000

The reconnaissance phase was completed in September 1991. A completion date is being determined for this feasibility study.

Rancho Palos Verdes	1,230,000	910,000	0	270,000	50,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

b. Flood Damage Prevention Studies: California, Rancho Palos Verdes (Cont'd)

The study area is located along the Rancho Palos Verdes coastline, California, approximately 20 miles south of Los Angeles, on the Pacific coast between Abalone Cove and Portuguese Bend. Palos Verdes peninsula is on an active landslide which once moved about 42 feet in one year, causing extensive damage to private and public property improvements. Massive earth slides have occurred over the past 30 years. As a result, 140 homes were destroyed or displaced; mud and rock were deposited in the ocean along 0.8 miles of coastline; over 8.5 million square feet of pristine coastal zone environmental habitat were destroyed or disturbed; and vital transportation services and major utility transmission lines were also disrupted. Significant erosion of the landslide toe along the Pacific Coast includes the loss of 10 million tons of earth results in continuous turbidity which impacts the tide pools and marine life. The State of California and local governments have invested over $4 million in an effort to stabilize the landslides which appears to be slowing as a result of the local work. The City of Rancho Palos Verdes has requested Federal assistance to maintain stability of the shoreline and has indicated a strong support for the study and a willingness to cost share in the feasibility phase. The reconnaissance study addressed the issues of coastal erosion and its impact on tide pools and marine life. Study results indicate that erosion prevention measures could restore the pristine environmental habitat including rocky subtidal, intertidal, and kelp beds which could be supported by Federal and State resources agencies. The City of Rancho Palos Verdes, the local sponsor, signed the Feasibility Cost Sharing Agreement in December 1994.

The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,600,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$2,030,000
Reconnaissance Phase (Federal)	430,000
Feasibility Phase (Federal)	800,000
Feasibility Phase (Non-Federal)	800,000

The reconnaissance phase was completed in December 1994. A completion date is being determined for this feasibility study.

San Antonio Creek	1,125,000	300,000	160,000	128,000	537,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

b. Flood Damage Prevention Studies: California, San Antonio Creek (Cont'd)

The San Antonio-Chino Creek drainage system is located in the southwestern corner of San Bernardino County and the eastern edge of Los Angeles County, California, and includes the cities of Chino, Chino Hills, Claremont, Diamond Bar, La Verne, Montclair, Pomona and Ontario. San Antonio Creek originates on the south flank of the San Gabriel mountains, draining 89 square miles. The 15-mile creek crosses a large alluvial outwash plain and is joined by Chino Creek before entering the Prado Basin. The area is protected by two Corps projects, San Antonio Dam, constructed in 1954, and the San Antonio-Chino Creek improvements, constructed in 1960. Since completion of these projects, the area has experienced rapid urbanization; growth has greatly exceeded original projections, with the current population estimated to be 2 million people. Existing flood control projects no longer provide adequate protection. The study will evaluate the potential of flooding and overflows within the watershed and develop conceptual solutions to the flooding problems. San Bernardino County Flood Control District, the local sponsor, expressed support for the study in April 1994, understands the two-phase planning process, and is willing to participate in 50-50 cost sharing of feasibility phase studies. The Feasibility Cost-Sharing Agreement is scheduled to be signed in July 1996.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase at full Federal expense, and if the reconnaissance report is certified to be in accord with policy, to continue into the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,350,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,800,000
Reconnaissance Phase (Federal)	450,000
Feasibility Phase (Federal)	675,000
Feasibility Phase (Non-Federal)	675,000

The reconnaissance phase is scheduled for completion in July 1996. A completion date is being determined for this feasibility study.

San Joaquin River Basin, Arroyo Pasajero (Fresno County)	3,665,000	1,577,000	850,000	1,000,000	238,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

b. Flood Damage Prevention Studies: California, San Joaquin River Basin, Arroyo Pasajero (Fresno County) (Cont'd)

The study area is located near the town of Coalinga, in central California and is about 50 miles southwest of the city of Fresno. Arroyo Pasajero is an ephemeral stream that flows from the Coast Range and has formed an alluvial fan along the west side of the San Joaquin Valley. Floodwaters overflow the defined channel of the stream during significant storms and spread overland. In 1967 the California Aqueduct was built and flood protection facilities were constructed consisting of a shallow retention basin, a gated evacuation culvert beneath the Aqueduct, and an inlet into the Aqueduct for Arroyo Pasajero. Existing flood protection facilities have proven inadequate. Updated hydrologic and sedimentation studies indicate that both the estimated average annual sediment loads and 100-year storm volumes are several times greater than original design estimates. Floodflows threaten the structural integrity of the Aqueduct as well as cause significant damage to agriculture and public facilities in the communities of Coalinga (population 9,600) and Huron (population 5,700), and the Lemoore Naval Air Station. In March 1995 heavy rain caused catastrophic flooding in the area where 7 lives were lost following the collapse of an Interstate Highway 5 bridge crossing and Highway 269, the main access route to Huron, was closed. A levee breach also caused water contamination in the California Aqueduct. Agricultural losses in the surrounding area amounted to $3 million. The Arroyo Pasajero is also a major source of asbestos. The sources of asbestos are naturally occurring serpentine soils and several abandoned asbestos mines in the upper watershed of Los Gatos Creek, a major tributary to Arroyo Pasajero. The Aqueduct furnishes a significant portion of the water supply for millions of Southern Californians. Potential projects include enlargement of the retention basin at Arroyo Pasajero adjacent to the Aqueduct, an Aqueduct overchute crossing to convey floodwaters over the Aqueduct, an eastside channel and detention plan, and asbestos abatement measures. The California Department of Water Resources, the local sponsor, signed the Feasibility Cost Sharing Agreement in January 1994.

Fiscal Year 1996 funds are being used to continue the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The estimated cost of the feasibility phase is $5,600,000, which is being shared on a 50-50 basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$6,465,000
Reconnaissance Phase (Federal)	865,000
Feasibility Phase (Federal)	2,800,000
Feasibility Phase (Non-Federal)	2,800,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
b. Flood Damage Prevention Studies: California, San Joaquin River Basin, Arroyo Pasajero (Fresno County) (Cont'd)					
The reconnaissance phase was completed in January 1994. A completion date is being determined for this feasibility study.					
San Joaquin River Basin, South Sacramento County Streams	2,070,000	798,000	451,000	550,000	271,000

The South Sacramento County Streams drainage basin is located in the southeastern portion of Sacramento County, California. The study area consists of the Morrison Creek Stream Group Basin, approximately 180 square miles in size. The basin includes Morrison, Elder, Unionhouse, Florin, and Laguna Creeks; a portion of the city of Sacramento and unincorporated portions of Sacramento County; the communities of Florin, Elk Grove, and Franklin; and the Sacramento Army Depot and former Mather Air Force Base. The study is addressing flooding on Morrison, Elder, Unionhouse and Laguna Creeks. Significant development has occurred in the upper basin, in the Elk Grove area, which is increasing the runoff and potential for flooding. No Federal water resource development projects exist in the area. Significant flooding occurred in 1952, 1955, 1962, 1963, 1967, 1969, 1973, 1982, 1986 and 1995. Approximately 12,500 homes and other structures are within the 500-year floodplain with an estimated value of $2.0 billion. Levees along Morrison Creek and tributaries provide less than a 100-year level of flood protection. Potential projects include a combination of channel and levee improvements and detention facilities. The study is supported by the City and County of Sacramento and the California Water Commission. The Sacramento Area Flood Control Agency, together with the City and County of Sacramento, expressed support for the study in March 1995, understands the two-phase planning process and is willing to participate in 50-50 cost sharing of feasibility phase studies. The Feasibility Cost Sharing Agreement was signed in May 1995.

Fiscal Year 1996 funds are being used to continue the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase. The estimated cost of the feasibility phase is $2,800,000, which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$3,470,000
Reconnaissance Phase (Federal)	670,000
Feasibility Phase (Federal)	1,400,000
Feasibility Phase (Non-Federal)	1,400,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
b. Flood Damage Prevention Studies: California, San Joaquin River Basin, South Sacramento County Streams (Cont'd)					
The reconnaissance phase was completed in May 1995. A completion date is being determined for this feasibility study.					
San Joaquin River Basin Stockton Metropolitan Area	2,000,000	0	296,000	540,000	1,164,000

The study area is located in the city of Stockton and vicinity within portions of Calaveras, San Joaquin and Stanislaus Counties, approximately 40 miles south of Sacramento, California. The study area extends from the Calaveras River, Mormon Slough, and Bear Creek and Tributaries area north of Stockton, to the Little John Creek and Farmington areas southeast of Stockton. Flooding has occurred in the study area in recent years and the Federal Emergency Management Agency has recently designated much of the Stockton urban area, with approximately 300,000 residents, as within the agency's 100-year floodplain. Because of rapid development during the late 1980's and early 1990's, potential flood damages have increased significantly. There may also be opportunities to analyze water storage potential of Farmington Dam on Little John Creek as a related project purpose. Local interests including the City of Stockton, State of California, San Joaquin County and Stockton East Water District strongly support the study. The City of Stockton and San Joaquin County, the local sponsors, expressed support for the study in February 1995, understand the two-phase planning process, and is willing to participate in 50-50 cost sharing of feasibility phase studies. The Feasibility Cost Sharing Agreement is scheduled to be signed in July 1997.

Fiscal Year 1996 funds are being used to initiate the reconnaissance phase of the study at full Federal expense. Funds requested for Fiscal Year 1997 will be used to complete the reconnaissance phase, and if the reconnaissance report is certified to be in accord with policy, continue into the feasibility phase of the study. The estimated cost of the feasibility phase is $2,400,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of cost sharing is as follows:

Total Estimated Study Cost	$3,200,000
Reconnaissance Phase (Federal)	800,000
Feasibility Phase (Federal)	1,200,000
Feasibility Phase (non-Federal)	1,200,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
b. Flood Damage Prevention Studies: California, San Joaquin River Basin, Stockton Metropolitan Area (Cont'd)					
The reconnaissance phase is scheduled for completion in July 1997. A completion date is being determined for this feasibility study.					
San Joaquin River Basin, Tule River	1,469,000	844,000	25,000	200,000	400,000

The study area is located within the 12,500 square mile Tulare Lake Basin and located in the southeastern portion of the San Joaquin Valley about 60 miles north of the city of Bakersfield, California. Tule River drains about 390 square miles into Success Lake and flows from the lake onto the valley through the city of Porterville (population 34,000) located 5 miles downstream and continues another 25 miles westerly through rich agricultural areas, culminating in Tulare Lakebed. Success Lake currently provides 55-year flood control protection to the city of Porterville and irrigation water supply. In December 1966, floodflows caused Success Lake to completely fill and excess floodflows passed over the spillway inundating about 24,800 acres downstream and about 1,500 acres above the dam. Flood damages of about $1.5 million resulted to agricultural, industrial, utilities, and public facilities. At 1995 price levels, flood damages of about $6.8 million would have occurred in the area. In 1983 the lake again filled and excess floodflows caused damages of about $360,000 along Tule River. Flood damages further downstream in the Tulare Lakebed were extremely severe and widespread and damages attributed to the Tule River were nearly $7.5 million. During this flood local interests pumped flood releases into the Friant-Kern Canal to disperse the water through the Kern River-California Aqueduct Intertie. Had this action not occurred, Tulare Lakebed damages would have been greater. In March 1983, the Tulare County Board of Supervisors requested the Corps to study the potential of increasing flood storage of Success Lake for a higher degree of flood protection and possible increased conservation storage. The feasibility phase of the study was initiated in 1988, but discontinued in April 1992 pending the completion and findings of seismic studies conducted under the Operation and Maintenance, General Program. Preliminary results of the seismic studies indicate feasibility studies can now be resumed. An amended Feasibility Cost Sharing Agreement is scheduled to be signed in February 1996 with the local sponsor, the Lower Tule River Irrigation District.

Fiscal Year 1996 funds are being used to execute the amended Feasibility Cost Sharing Agreement and to resume the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $2,308,000, including $2,258,000 which is to be shared on a 50-50 basis by Federal and non-Federal interests and $50,000 for preparation of a revised cost sharing agreement

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

b. Flood Damage Prevention Studies: California, San Joaquin River Basin, Tule River (Cont'd)

at full Federal expense. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,598,000
Reconnaissance Phase (Federal)	290,000
Feasibility Phase (Federal)	1,179,000
Feasibility Phase (Non-Federal)	1,129,000

The reconnaissance phase was completed in May 1988. A completion date is being determined for this feasibility study.

Santa Barbara County Streams, Lower Mission Creek	2,799,000	1,968,000	81,000	350,000	400,000

The study area is located in Santa Barbara County about 100 miles northwest of Los Angeles, California. Mission Creek drains an area of 12.2 square miles and flows from the south slope of the Santa Ynez Mountains through heavily developed portions of the city of Santa Barbara into a tidal estuary neighboring the Pacific Ocean. Since 1960, the population has increased over 120 percent in Santa Barbara County and 40 percent in the Mission Creek area. Through the years, the environmental quality of a once pristine riparian ecosystem has degraded as individual property owners have installed random streambank stabilization works to protect river-front property from natural flooding events and erosion. The Mission Creek floodplain is a fully developed residential, commercial, and industrial area. In 1980, a flood damaged residential and commercial property and closed State Highway 101, a major transportation route between Los Angeles and the northern California coastal cities of San Jose and San Francisco. The floods of 1978 and 1980 resulted in a demand for flood protection along Mission Creek, the greatest unsolved flood hazard of any stream in the county. A feasibility report, that was completed by the Corps in Fiscal Year 1986, recommended a project of 1.2 miles of concrete channelization for the lower portion of Mission Creek which would provide a 100-year level of flood damage protection. The project was subsequently authorized for construction by the Water Resources Development Act of 1988. However in 1993, during preconstruction engineering and design, it was determined that the recommended plan would not function as authorized due to hydraulic sedimentation problems. In January and March of 1995, major flooding once again damaged residential and commercial properties, cut off rail service to coastal California, and led to a Federal disaster declaration. Environmental conditions

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

b. Flood Damage Prevention Studies: California, Santa Barbara County Streams, Lower Mission Creek (Cont'd)

have also changed in the study area due to the presence of the Tidewater Goby, an endangered fish species. Local interests continue to strongly support a project for flood control and the study of the area's flooding problems, while maintaining vigorous interest in restoring the remaining riparian habitat of Mission Creek. Different alternatives to the locally developed flood control plan and environmental restoration opportunities are being addressed in the reconnaissance study. Each alternative is being analyzed with flood control or restoration of the riparian ecosystem as the primary project purposes. The Feasibility Cost Sharing Agreement is scheduled to be signed in April 1996.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase of the study at full Federal expense. If the reconnaissance report is certified to be in accord with policy, the funds requested for Fiscal Year 1997 will be used to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,500,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in kind services. A summary of study cost sharing is as follows:

Total estimated study cost	$3,549,000
Reconnaissance phase (Federal)	2,049,000
Feasibility phase (Federal)	750,000
Feasibility phase (Non-Federal)	750,000

The reconnaissance phase is scheduled for completion in April 1996. A completion date is being determined for this feasibility study.

Seven Oaks and Prado Dams Water Conservation	$1,168,000 1/	903,000	205,000	60,000	0

Seven Oaks and Prado Dams are located on the Santa Ana River in Riverside and San Bernardino Counties, California. Water conservation is an increasingly important consideration in the arid Southern California environment. At a time when imported water supplies are being reduced, it is essential that additional sources of clean water be investigated in an area of rapid population growth. The study will address conditions as they will exist with the Santa Ana River Mainstem project in place and will investigate seasonal water conservation potential to determine whether any modifications for the intent of water conservation are economically justified. Within funds appropriated for construction of the Santa Ana River

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

b. Flood Damage Prevention Studies: California, Seven Oaks and Prado Dams Water Conservation (Cont'd)

Mainstem project, $500,000 was used for the reconnaissance study to review the feasibility of water conservation at Seven Oaks and Prado Dams. The Reconnaissance Report completed in October 1992, recommended Seven Oaks Dam portion of the study proceed into the feasibility phase and a re-operation study be conducted for Prado Dam. The San Bernardino County Flood Control District, the local sponsor, signed the Feasibility Cost Sharing Agreement in December 1993.

Fiscal Year 1996 funds are being used to continue the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to complete the feasibility study. The estimated cost of the feasibility phase is $2,180,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,258,000
Reconnaissance Phase (Federal)	78,000 1/
Feasibility Phase (Federal)	1,090,000
Feasibility Phase (Non-Federal)	1,090,000

1/ Excludes $500,000 for reconnaissance phase appropriated under Construction, General.

The reconnaissance phase was completed in December 1993. A completion date is being determined for this feasibility study.

Upper Guadalupe River	2,974,000	1,999,000	396,000	579,000	0

The study area is located along the Upper Guadalupe River, in the city of San Jose, Santa Clara County, California. The reach of river proposed for improvement begins 1,800 feet upstream of the Southern Pacific Railroad crossing at the edge of downtown San Jose and extends south for about 5.0 miles to Blossom Hill Road. The Guadalupe River, extending from the community of Alviso at the river's mouth upstream for about 21 miles, is one of the major drainage areas in Santa Clara Valley. The Valley experiences periodic flooding as a result of high intensity rainstorms which occur every few years. In 1958, the largest flood on record caused damages of about $1.3 million in the region. Recent flooding in the Upper Guadalupe Basin occurred on five occasions during the 1980's and 1995. It is estimated that the 100-year flood event in the study area would flood over 2,200 acres affecting over 8,300 structures, including six schools and cause an estimated $112 million in damages. The potential for additional flood damage is expected to increase as development continues in this highly urbanized area. The feasibility study is evaluating a variety of non-structural and structural plans of improvement for flood protection in the Upper Guadalupe Basin. The Santa Clara Valley Water District, the local sponsor, signed the

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

b. Flood Damage Prevention Studies: California, Upper Guadalupe River (Cont'd)

Feasibility Cost Sharing Agreement in October 1990.

Fiscal Year 1996 funds are being used to continue the feasibility study. The funds requested for Fiscal Year 1997 will be used to complete the feasibility phase of the study. The estimated cost of the feasibility phase is $4,988,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$ 5,468,000
Reconnaissance Phase (Federal)	480,000
Feasibility Phase (Federal)	2,494,000
Feasibility Phase (Non-Federal)	2,494,000

The reconnaissance phase was completed in October 1990. The feasibility study is scheduled for completion in December 1997.

Upper Penitencia Creek	1,815,000	315,000	100,000	450,000	950,000

The study area, extending along 3.6 miles of Upper Penitencia Creek and its watershed, is located in the northwest portion of Santa Clara County, California, adjacent to the city of San Jose. Flooding has occurred in the watershed from Upper Penitencia Creek flows in 1955, 1958, 1962, 1963, 1973, 1980, 1982 and 1983. The 1982 flood, an approximate 10-year event, resulted in over $2 million in damages. The flood plain contains approximately 1,600 properties that are subject to flood damage. It is estimated that a 100-year flood event would cause $48 million in damage. A study was initiated by the Soil Conservation Service which developed feasibility level plans for flood damage reduction, but the amount of agricultural benefits identified in the analysis was insufficient to permit Soil Conservation Service participation. The Corps of Engineers was requested by the local sponsor to continue the effort. The improvements proposed by the Soil Conservation Service include flood proofing, new levees, floodwalls, bypass channels, channel realignment, grade stabilization and vegetative work in order to provide a 100-year level of flood protection. The reconnaissance study provided a review of the Soil Conservation Service study efforts and identified the remaining tasks to be performed during the feasibility and design phases as needed for Corps of Engineers processing. The Santa Clara Valley Water District, the local sponsor, expressed support for the study in June 1995, understands the two-phase planning process, and is willing to consider 50-50 cost sharing of feasibility phase studies. A Feasibility Cost Sharing Agreement is scheduled to be signed in May 1996.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

b. Flood Damage Prevention Studies: California, Upper Penitentia Creek (Cont'd)

Fiscal Year 1996 funds are being used to complete the reconnaissance phase of the study at full Federal expense, and if the reconnaissance report is certified to be in accord with policy, to continue into the feasibility phase of the study. Funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $3,000,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$3,315,000
Reconnaissance Phase (Federal)	315,000
Feasibility Phase (Federal)	1,500,000
Feasibility Phase (Non-Federal)	1,500,000

The reconnaissance phase is scheduled for completion in May 1996. A completion date is being determined for this feasibility study.

Whitewater River Basin	2,080,000	845,000	323,000	430,000	482,000

The Whitewater River flows through the cities of Palm Springs, Rancho Mirage, Palm Desert and other communities located in the Coachella Valley in San Bernardino and Riverside Counties, California. The Whitewater River is the Coachella Valley's main stormwater channel, draining approximately 1,600 square miles. The channel's banks traditionally sustain extensive damage during flash floods, creating the potential for damages to the adjacent communities. Seven major floods occurred between 1965 and 1980. The July 1979 flood caused damages estimated at $31.5 million ($69.5 million at 1995 prices) and the September 1976 flood caused damages estimated at $18 million ($49.5 million at 1995 prices). Since 1976, the Corps of Engineers and the Coachella Valley Water District have solved some of the flood related problems; yet with nearby communities experiencing increasing development, problems still exist. Development in the basin is occurring at one of the most rapid rates in the state, which has increased potential damages from flood, and associated water resource problems in recent years. The reconnaissance study investigated flood damage reduction and related purposes for the entire Whitewater River basin, from the base of the San Bernardino Mountains to the Salton Sea, approximately 50 miles. Although the reconnaissance study determined that there is no apparent Federal interest in any further study of the erosion problems on the mainstem of the Whitewater River, it identified a significant flooding problem in the portion of the Coachella Valley north of Interstate Highway 10. This region is the last major undeveloped area within the upper Coachella Valley, however,

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

b. Flood Damage Prevention Studies: California, Whitewater River Basin (Cont'd)

development of the Thousand Palms area has greatly accelerated in recent years. The Coachella Valley Water District, the local sponsor, signed the Feasibility Cost Sharing Agreement in July 1994.

Fiscal Year 1996 funds are being used to continue the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase. The preliminary estimated cost of the feasibility phase is $3,310,000, which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$3,735,000
Reconnaissance Phase (Federal)	425,000
Feasibility Phase (Federal)	1,655,000
Feasibility Phase (Non-Federal)	1,655,000

The reconnaissance phase was completed in July 1994. A completion date is being determined for this feasibility study.

Nevada

Truckee Meadows	1,700,000	0	50,000	650,000	1,000,000

The study area is located in the Reno-Sparks metropolitan area in Nevada. The Truckee River, which originates at Lake Tahoe in eastern California, flows through the cities of Reno and Sparks in an easterly direction, eventually draining to Pyramid Lake in northern Nevada. . The Reno-Sparks area contains extensive commercial, industrial, and residential developments which have developed in a floodplain area totaling over 8,500 acres. Much of this floodplain area is located in the Truckee Meadows which contains a variety of environmental restoration opportunities. The 1995 population for the cities of Reno and Sparks was 155,000 and 62,000 respectively. The flood of record occurred in December 1955, however, advanced preparations and a well coordinated flood fighting program limited damages from the flood to $1.7 million. Other large floods on the Truckee River, have occurred in 1907, 1937, 1950, 1963, and 1986. Flood damages in the study area, as a result of the February 1963 flood, amounted to about $1.7 million at that time. The most recent flooding occurred in February 1986 causing over $10 million in damages. Extensive local flood fighting effort was a critical factor in preventing an additional $70 million in estimated damages. The Chief of Engineers issued a report for a flood control

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

b. Flood Damage Prevention Studies: Nevada, Truckee Meadows (Cont'd)

project for the area in July 1986 and preconstruction engineering and design was initiated in Fiscal Year 1988. The project was authorized for construction in the Water Resources Development Act of 1988. However, during preconstruction engineering and design, a reevaluation of project benefits and costs determined that the project as then formulated was no longer feasible. For this reason, the project was placed in a deferred status and design activities terminated in April 1992. However, Washoe County recently renewed its interest in a project and supports additional studies of the area's flood problems. The reconnaissance study will examine the feasibility of alternative plans for flood control and evaluate changes in the overall area which have occurred since the project was authorized. The study will also review environmental restoration opportunities supporting related feasibility studies initiating in Fiscal Year 1997 for the Lower Truckee River. Washoe County, the local sponsor, expressed support for the study in December 1995, understands the two-phase planning process, and is willing to consider participating in 50-50 cost sharing of feasibility phase studies. The Feasibility Cost Sharing Agreement is scheduled to be signed in September 1997.

Fiscal Year 1996 funds are being used to initiate the reconnaissance phase at full Federal expense. Funds requested for Fiscal Year 1997 will be used to complete the reconnaissance phase and if the reconnaissance report is certified to be in accord with policy, continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $2,040,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interest. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,720,000
Reconnaissance Phase (Federal)	680,000
Feasibility Phase (Federal)	1,020,000
Feasibility Phase (non-Federal)	1,020,000

The reconnaissance phase is scheduled to be completed in September 1997. A completion date is being determined for this feasibility study.

Utah

Provo and Vicinity	1,550,000	0	334,000	320,000	896,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

b. Flood Damage Prevention Studies: Utah, Provo and Vicinity (Cont'd)

The study area is located along the Provo River and adjacent area in Provo, Utah, approximately 45 miles south of Salt Lake City. The city of Provo is located just west of the Wasatch Mountain Range. The city has extensive commercial and residential development in the flood plain and is the location of Brigham Young University. The 1994 population of Provo was approximately 94,000. Flooding in Provo is caused by both snowmelt and cloudburst storms which result in frequent flooding in an urban area of the city. During the past 53 years of record, 7 floods have occurred which have been identified as having frequencies of 10 years or larger. In 1983, floods caused $1.3 million in damages. Advanced preparations and a well coordinated emergency flood fighting effort, estimated at a cost of $887,000 in 1983 and $230,000 in 1984, prevented what would have undoubtedly been very extensive flood damage. Flooding occurred again in 1986, but successful flood fighting activities limited the damages for this event. The most likely plan of improvement for reducing the flood hazard would include detention basins on streams draining the nearby Wasatch Mountain Range, channel modifications on streams draining into the Provo River through Provo, and channel modifications and levees along the Provo River. The City of Provo, the local sponsor, expressed support for the study in August 1994, understands two-phase planning process, and is willing to participate in 50-50 cost sharing of feasibility phase studies. The Feasibility Cost Sharing Agreement is scheduled to be signed in July 1997.

Fiscal Year 1996 funds are being used to initiate the reconnaissance phase of the study at full Federal expense. The funds requested for Fiscal Year 1997 will be used to complete the reconnaissance phase of the study, and if the reconnaissance report is certified to be in accord with policy to continue into the feasibility phase of the study. The estimated cost of the feasibility phase is $1,860,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,480,000
Reconnaissance Phase (Federal)	620,000
Feasibility Phase (Federal)	930,000
Feasibility Phase (Non-Federal)	930,000

The reconnaissance phase is scheduled to be completed in July 1997. A completion date is being determined for this feasibility study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
b. Flood Damage Prevention Studies: (Cont'd)					
TOTAL FLOOD DAMAGE PREVENTION STUDIES	34,436,000	13,240,000	4,596,000	6,967,000	9,633,000
c. Shoreline Protection Studies: The amount of $504,000 is requested to complete two studies in Fiscal Year 1997.					
California					
Peninsula Beach	400,000	0	148,000	252,000	

The study area is located in the city of Long Beach, on the coast of southern California, about 20 miles south of downtown Los Angeles. The Peninsula Beach area is located along a three-mile stretch of the Pacific Ocean north of the entrance to Alamitos Bay and south of the San Pedro Bay breakwater at Long Beach Harbor. Residential development valued at about $200 million is threatened by a persistent erosion problem on Peninsula Beach. Technical findings indicate that the average rate of erosion is 10 to 20 feet per year along the 100-foot-wide beach, and winter storms could cause shoreline erosion of 50 to 150 feet along this area and result in damages to backshore development. During the 1983 storms, the 175-foot protective beach was breached, resulting in waves overtopping a seawall and causing damages to development. The City of Long Beach has invested $5 million over a period of 14 years to replenish the beach and has requested Federal assistance to find a permanent solution to the prevailing erosion problems. The study will evaluate alternative methods of solving the shoreline erosion problem.

Fiscal Year 1996 funds are being used to initiate the reconnaissance phase of the study. The funds requested for Fiscal Year 1997 will be used to complete the reconnaissance phase at full Federal expense. The reconnaissance phase is scheduled for completion in July 1997.

Ventura and Santa Barbara County Shoreline	400,000	0	148,000	252,000	0

The study area includes approximately 80 miles of Pacific Ocean shoreline located in Ventura and Santa Barbara Counties in Southern California. The coastal shoreline area proposed for study begins about 50 miles northwest of Los Angeles and extends northward through Ventura and Santa Barbara Counties. Severe erosion of the protective beaches along

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

c. Shoreline Protection Studies: California, Ventura and Santa Barbara County Shoreline (Cont'd)

severalcommunities has exposed backshore development to wave attack from coastal storms and has reduced area available for recreation. Field observations indicate that the average rate of erosion is 3 to 5 feet per year along the 25 to 50-foot-wide protective beaches, and winter storms could cause shoreline erosion of 50 to 150 feet and result in damages to back shore development. The 1978 and 1983 storms caused damages of $1.8 million and $850,000 in Ventura County and $300,000 and $1.4 million in Santa Barbara County, respectively. County and city governments are interested in a sand management plan to restore and maintain beaches using maintenance dredging material from the existing Federal navigation harbors at Santa Barbara, Ventura, Channel Islands, and Port Hueneme, as well as other sources. The Beach Erosion Authority for Central Operations and Nourishment, a joint powers authority also including other counties and their coastal cities, has requested Federal shore protection assistance for the area.

Fiscal Year 1996 funds are being used to initiate the reconnaissance phase of the study. The funds requested for Fiscal Year 1997 will be used to complete the reconnaissance phase at full Federal expense. The reconnaissance phase is scheduled for completion in July 1997.

TOTAL SHORELINE PROTECTION STUDIES	800,000	0	296,000	504,000	0

d. Special Studies: The amount of $7,050,000 is requested to continue twenty studies Fiscal Year 1997.

Arizona

Rio Salado, Salt River	2,045,000	850,000	249,000	500,000	446,000

The study area is located in the cities of Tempe and Phoenix, Arizona, along 8.5 miles of the Salt River. The reconnaissance study, which addressed restoration of riparian habitat in conjunction with water quality along 30 miles of the river, recommended further study of two sites. The first site is 1.5 miles on Indian Bend Wash, from Mckellips Road downstream to the confluence with the Salt River in Tempe; the second site is located along 7 miles of the Salt River, from the Interstate Highway 10 Bridge to 19th Avenue in Phoenix. The study will address the feasibility of wetlands and riparian vegetation restoration within the existing flood control channel which is located in an arid, urban environment. The Cities of Tempe and Phoenix, the local sponsors, signed the Feasibility Cost Sharing Agreement in January 1996.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1997

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

d. Special Studies: Arizona, Rio Salado, Salt River (Cont'd)

Fiscal Year 1995 and 1996 funds are being used to initiate the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $2,590,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$3,340,000
Reconnaissance Phase (Federal)	750,000
Feasibility Phase (Federal)	1,295,000
Feasibility Phase (Non-Federal)	1,295,000

The reconnaissance phase was completed in January 1996. A completion date is being determined for this feasibility study.

California

Central Basin Groundwater Project	1,900,000	750,000	150,000	363,000	637,000

The Central Ground Water Basin is located in southeastern Los Angeles County, California, just downstream of Whittier Narrows. Situated between two large ranges of hills, Whittier Narrows acts as a narrow hydrologic connection between two massive groundwater basins, the San Gabriel Basin and the Central Basin. In recent years, industrial contaminants and toxic pollutants originating in the San Gabriel Basin have begun to migrate toward Whittier Narrows and could impact groundwater quality in the Central Basin. Concerns expressed by local governments, water supply agencies, and environmental agencies are that the contamination will continue its current migratory pattern into and through Whittier Narrows, and then gain access to the Central Basin, the primary source of water for more than a dozen communities in the area. Development of complex measures for containment, including the evaluation of the operation of existing Federal flood control facilities, will be required as part of a multi-objective solution of the problem. The Water Replenishment District of Southern California expressed support for the study in May 1995, understands the two-phase planning process, and is willing to participate in 50-50 cost sharing of the feasibility phase study. The Feasibility Cost-Sharing Agreement is scheduled to be signed in April 1996.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

d. Special Studies: California, Central Basin Groundwater Project (Cont'd)

Fiscal Year 1996 funds are being used to complete the reconnaissance phase of the study at full Federal expense, and if the reconnaissance report is certified to be in accord with policy, to continue into the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $2,250,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	3,025,000
Reconnaissance Phase (Federal)	775,000
Feasibility Phase (Federal)	1,125,000
Feasibility Phase (Non-Federal)	1,125,000

The reconnaissance phase is scheduled for completion in April 1996. A completion date is being determined for this feasibility study.

Imperial County Watershed	1,250,000	0	225,000	389,000	636,000

Imperial County is located in southern California and is bordered by the Chocolate Mountains on the east, Mexico on the south, Riverside County on the north, and San Diego on the West. The Imperial Valley's main economic resource is the agricultural industry. Approximately 3,000 miles of canals and drains deliver and control over 2 1/2 million acre-feet of water diverted from the Colorado River annually for agriculture and other uses in the Imperial Valley. Problems facing Imperial County include the immediate need for a watershed resources survey to address problems associated with the county's water supply. Additional problems impacting the entire watershed ecosystem include degradation to habitat values and wetlands within the lower Salton Sea and tributaries, including the New River. Studies will concentrate on the investigation for potential solutions to the flood control, water quality, water supply and environmental problems associated with Imperial County. The Imperial County Board of Supervisors, the Cities of Calexico, Imperial, El Centro, and Brawley, and Imperial Valley Irrigation District, the local sponsors, expressed support for the study in May 1995, understand the two-phase planning process, and are willing to participate in 50-50 cost-sharing of feasibility phase studies. The Feasibility Cost-Sharing Agreement is scheduled to be signed in May 1997.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

d. Special Studies: California, Imperial County Watershed (Cont'd)

Fiscal Year 1996 funds are being used to initiate the reconnaissance phase of the study. The funds requested for Fiscal Year 1997 funds will be used to complete the reconnaissance phase of the study at full Federal expense, and if the reconnaissance report is certified to be in accord with policy, to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,500,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,000,000
Reconnaissance Phase (Federal)	500,000
Feasibility Phase (Federal)	750,000
Feasibility Phase (Non-Federal)	750,000

The reconnaissance phase is scheduled for completion in May 1997. A completion date is being determined for this feasibility study.

Los Angeles County Drainage Area Water Conservation and Supply (Hansen and Lopez Dams)	1,270,000	400,000	296,000	370,000	204,000

The study area is located in Los Angeles County, California about 20 miles northwest of the city of Los Angeles. The watershed that drains into Hansen and Lopez Dams includes an area of 152 square miles. Los Angeles County uses approximately 2 million acre-feet of water annually from available local water supply and outside supply sources, which account for two-thirds of this total. Each of these sources are limited as to possible expansion in the future and, as a result, protection and development of local groundwater sources and conservation of storm water runoff are becoming increasingly important. Water storage reserves have diminished considerably due to population growth and years of drought. The study is investigating various methods for the capture and release of surface flows for groundwater recharge and water conservation. Water conservation operations for groundwater recharge include utilization of the debris pool for water conservation during the flood season, and an expanded seasonal water conservation after the flood season. The reconnaissance report, recommending continuing into two feasibility studies, one for Hansen and Lopez Dams and the other for Santa Fe and Whittier Narrows Dams, was completed in May 1994. The Los Angeles County Department of Public Works, which

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

d. Special Studies: California, Los Angeles County Drainage Area Water Conservation and Supply (Hansen and Lopez Dams) (Cont'd)

will also represent various water districts, signed the Feasibility Cost-Sharing Agreement in December 1994.

Fiscal Year 1996 funds are being used to continue the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase. The preliminary estimated cost of the feasibility phase is $2,240,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,390,000
Reconnaissance Phase (Federal)	150,000
Feasibility Phase (Federal)	1,120,000
Feasibility Phase (Non-Federal)	1,120,000

The reconnaissance phase was completed in December 1994. A completion date is being determined for this feasibility study.

Los Angeles County Drainage Area Water Conservation and Supply, (Santa Fe and Whittier Narrows Dams)	1,360,000	400,000	341,000	430,000	189,000

The study area is located in Los Angeles County, California about 10-15 miles east of the city of Los Angeles. The San Gabriel and Rio Hondo Rivers watershed drains 767 square miles. Alternatives under study include water conservation operations at Santa Fe and Whittier Narrows Dams. Los Angeles County uses approximately 2 million acre feet of water annually from available local water supply and outside supply sources, which account for two-thirds of this total. Each of these sources are limited as to possible expansion in the future and, as a result, protection and development of local groundwater sources and conservation of storm water runoff are becoming increasingly important. Water storage reserves have diminished considerably due to population growth and years of drought. The study is investigating various methods for the capture and release of surface flows for groundwater recharge and water conservation during the flood season, and an expanded seasonal water conservation after the flood season. The reconnaissance report, recommending continuing into two feasibility studies, one for Hansen and Lopez Dams and the other for Santa Fe and Whittier Narrows Dams, was completed in

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

d. Special Studies: California, Los Angeles County Drainage Area Water Conservation and Supply (Santa Fe and Whittier Narrows) (Cont'd)

May 1994. The Los Angeles County Department of Public Works, which will also represent various water districts, signed the Feasibility Cost-Sharing Agreement in December 1994.

Fiscal Year 1996 funds are being used to continue the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase. The preliminary estimated cost of the feasibility phase is $2,420,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,570,000
Reconnaissance Phase (Federal)	150,000
Feasibility Phase (Federal)	1,210,000
Feasibility Phase (Non-Federal)	1,210,000

The reconnaissance phase was completed in December 1994. A completion date is being determined for this feasibility study.

Napa River, Salt Marsh Restoration	1,125,000	0	148,000	377,000	600,000

The study area is located in the northern portion of San Francisco Bay, California along the lower reach of Napa River, a Corps maintained navigation project. This low-lying floodplain area has experienced a degradation of environmental resources. Human impacts, including dredged material disposal from the Federal channel, have destroyed most of the original wetlands in the area. The degradation of fish and wildlife resources associated with the loss of these historic wetlands around San Francisco Bay has resulted in several species being listed as threatened or endangered. The study will address environmental protection and restoration in the area with emphasis on restoration of wetlands in the interest of providing habitat for estuarine fish, endangered species, migratory waterfowl and other wildlife. The study will also investigate the application of innovative techniques for wetland restoration similar to those being implemented for the Sonoma Baylands Wetlands Demonstration Project. The California State Coastal Conservancy, the local sponsor, expressed support for the study, understands the two-phase planning process, and is willing to participate in 50-50 cost sharing of feasibility phase studies. A Feasibility Cost Sharing Agreement is scheduled to be signed in July 1997.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

d. Special Studies: California, Napa River, Salt Marsh Restoration (Cont'd)

Fiscal Year 1996 funds are being used to initiate the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1997 will be used to complete the reconnaissance phase of the study and, if the reconnaissance report is certified to be in accord with policy, to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,350,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,800,000
Reconnaissance Phase (Federal)	450,000
Feasibility Phase (Federal)	675,000
Feasibility Phase (Non-Federal)	675,000

The reconnaissance phase is scheduled for completion in July 1997. A completion date is being determined for this feasibility study.

Newport Bay Harbor	1,030,000	468,000	125,000	200,000	237,000

The study area is located on the coast of Southern California in Orange County, about 40 miles southeast of Los Angeles. The existing Federal navigation project includes jetties forming the entrance, navigation channels, anchorage areas, and a turning basin. The upper Newport Bay area consists of an 800 acre, shallow tidal basin, much of which is part of a State Ecological Preserve that contains several Federal and State threatened and endangered species. The investigation will examine the Federal interest in the channel improvements and other measures to preserve and restore the valuable wetland areas which are experiencing severe degradation due to reduced tidal flushing and siltation. It is also likely that the siltation from the upper bay area will move into Federal channels as a result of floods, which could require costly emergency maintenance dredging., The City of Newport Beach has completed channel work to restore some tidal flushing to the upper bay, but this work is not considered to be a complete or permanent solution. The study is evaluating extending the existing Federal channel into Upper Newport Bay to the existing debris basins and providing additional channels to improve the tidal circulation. Orange County, the City of Newport Beach U.S. Fish and Wildlife Service, National Marine Fisheries Service, and California State Department of Fish and Game have all expressed interest in the study and the pursuit of Federal improvements. Orange County, the local sponsor, expressed support for the study in March 1995, understands the two-phase planning process, and is willing to participate in 50-50 cost sharing of feasibility phase studies. The Feasibility

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

d. Special Studies: California, Newport Bay Harbor (Cont'd)

Cost-Sharing Agreement is scheduled to be signed in April 1996.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase of the study at full Federal expense, and if the reconnaissance report is certified to be in accord with policy, to continue into the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,100,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,580,000
Reconnaissance Phase (Federal)	480,000
Feasibility Phase (Federal)	550,000
Feasibility Phase (Non-Federal)	550,000

The reconnaissance phase is scheduled for completion in April 1996. A completion date is being determined for this feasibility study.

Northern California Streams Cache Creek Environmental Restoration	1,250,000	350,000	170,000	250,000	480,000

The Cache Creek basin is located about 15 miles northwest of Sacramento, California and contains about 1,150 square miles of the drainage area. The Cache Creek riparian corridor is a 30 mile reach of lower Cache Creek from the town of Capay to the Cache Creek Settling Basin. The riparian corridor has been severely degraded as a result of multiple activities and developments along the creek including flood control works, recreation, water supply, and gravel mining. In addition, upstream water-related projects have changed the hydrologic conditions along Cache Creek and have significantly reduced the wildlife habitat within the area. Local interests strongly support developing an environmental restoration plan to preserve and restore wildlife resources and vegetation along the Cache Creek corridor. Potential restoration measures include gravel pit restoration, wetland creation within the settling basin, and creekside riparian plantings. The gravel pit proposal would involve construction of gates, canals and small detention structures at abandoned gravel sites. Water would be diverted into the restored sites thereby creating seasonal and permanent wetlands and riparian areas. The Yolo County Flood

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

d. Special Studies: California, Northern California Streams, Cache Creek Environmental Restoration (Cont'd)

Control and Water Conservation District expressed support for the study in November 1994, understands the two-phase planning process, and is willing to participate in 50-50 cost sharing of feasibility phase studies. The Feasibility Cost Sharing Agreement is scheduled to be signed in April 1996.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase at full Federal expense, and if the reconnaissance report is certified to be in accord with policy, continue into the feasibility phase of the study. Funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,500,000, which is to be cost shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,000,000
Reconnaissance Phase (Federal)	500,000
Feasibility Phase (Federal)	750,000
Feasibility Phase (Non-Federal)	750,000

The reconnaissance phase is scheduled for completion in April 1996. A completion date is being determined for this feasibility study.

Northern California Streams, Middle Creek	1,500,000	0	222,000	410,000	868,000

Middle Creek is located in Lake County, approximately 80 miles north of San Francisco, California. It is the main tributary into Clear Lake, the largest natural lake entirely within the borders of California. The Middle Creek Flood Control Project, constructed by the Corps between 1958 and 1968 included levee and channel improvements for flood protection for the town of Upper Lake and surrounding agricultural land. Channelization by the Corps and others, and the loss of the natural floodplain have resulted in the transport of substantial quantities of nutrient rich sediment to Clear Lake degrading the water quality. Large acreage of riparian communities were removed; of approximately 9,000 acres of historic emergent wetlands, approximately 7,500 acres have been lost or severely damaged. Prior to channelization of Middle Creek, flows spread out over a wide floodplain upstream of Clear Lake. This area was a significant wetland that provided natural biologic values including waterfowl habitat, water quality through filtering and trapping of sediments and natural flood

23-577 96 — 48

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

d. Special Studies: California, Northern California Streams, Middle Creek (Cont'd)

attenuation. The Middle Creek/Clear Lake ecosystem currently has considerable value as wildlife habitat. Restored, however, this ecosystem could have significantly greater value. The Middle Creek study will evaluate alternatives to restore the natural functions of the Middle Creek/Clear Lake ecosystem. Restoration would contribute to the goals of the North American Waterfowl Management Plan. Lake County Flood Control and the Water Conservation District, the local sponsor, expressed support for the study in March 1995, understands the two-phase planning process and is willing to participate in 50-50 cost sharing of feasibility phase studies. The Feasibility Cost Sharing Agreement is scheduled to be signed in July 1997.

Fiscal Year 1996 funds are being used to initiate the reconnaissance phase of the study at full Federal expense. The funds requested for Fiscal Year 1997 will be used to complete the reconnaissance phase of the study, and if the report is certified to be in accord with policy, continue into the feasibility phase of the study. The estimated cost of the feasibility phase is $1,800,000 to be cost shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share will be in-kind services. A summary of the cost sharing is as follows:

Total Estimated Study Cost	$2,400,000
Reconnaissance Phase (Federal)	600,000
Feasibility Phase (Federal)	900,000
Feasibility Phase (Non-Federal)	900,000

The reconnaissance phase is scheduled for completion in July 1997. A completion date is being determined for this feasibility study.

Northern California Streams, Sacramento River Fish Migration	1,500,000	550,000	75,000	300,000	575,000

The study area is located in northern California and includes the mainstem of the Sacramento River downstream from Verona to Collinsville, the Sacramento River Deep Water Ship Channel, and most of the Sacramento-San Joaquin Delta. The area under study includes about 550 square miles. The Sacramento Deep Water Ship Channel (30 foot depth), which extends from Collinsville to Sacramento, was constructed and completed by the Corps in 1963 for the improvement of commercial navigation. The current Sacramento River Deep Water Ship Channel project is deepening the existing channel to 35 feet. The salmon runs

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

d. Special Studies: California, Northern California Streams, Sacramento River Fish Migration (Cont'd)

in the Sacramento River have declined substantially in recent years. More than 70 percent of all salmon caught off the coast of California come from the Sacramento River system. There are four separate runs (spring, fall, late fall, winter) with each run experiencing severe declines in the past 20 years. The winter-run salmon, in particular, has declined nearly 98 percent and is currently listed as endangered under both Federal and State laws. Restoration of shaded riverain aquatic and riparian habitat along the Sacramento River and associated sloughs between Collinsville and American River is the focus of the feasibility study. The Sacramento River Fish Migration study is also investigating improving fish migration through the Sacramento-San Joaquin Delta through the manmade navigation channel by including fish passage improvements at William G. Stone Lock. Potential projects must be compatible with navigation purposes. The State of California, the local sponsor, expressed support for the study in April 1995, understands the two-phase planning process, and is willing to participate in 50-50 cost sharing of feasibility phase studies. The Feasibility Cost Sharing Agreement is scheduled to be signed in July 1996.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase of the study at full Federal expense, and if the reconnaissance report is certified to be in accord with policy, continue into the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The estimated cost of the feasibility phase is $1,800,000 to be cost shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share will be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,400,000
Reconnaissance Phase (Federal)	600,000
Feasibility Phase (Federal)	900,000
Feasibility Phase (Non-Federal)	900,000

The reconnaissance phase is scheduled for completion in July 1996. A completion date is being determined for this feasibility study.

Prado Basin Water Supply	790,000	0	100,000	350,000	340,000

Prado Dam is located on the Santa Ana River at the head of Santa Ana Canyon, three miles upstream from Orange County and

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

d. Special Studies: California, Prado Basin Water Supply (Cont'd)

within both Riverside and San Bernardino Counties, California. The study will investigate water conservation potential during the flood control season, from October to March. After modifications from the Santa Ana River Mainstem project, the Orange County Water District desires to raise the flood season water conservation pool from 494 feet to 500 feet for Prado Dam with advanced flood forecasting methods. Due to complex land use ownership and environmental issues, including endangered species, the water district desires a feasibility study which will include an Environmental Impact Statement. Previous Corps study findings resulted in approval of seasonal water conservation from the debris pool 490 feet to elevation 505 feet. Continued rapid escalation of costs of potable water has created a need to investigate other less costly sources of water. The Orange County Water District, expressed support for the study in December 1995, understands the two-phase planning process, and is willing to participate in 50-50 cost sharing of feasibility phase studies. The Feasibility Cost Sharing Agreement is scheduled to be signed in September 1996.

Fiscal Year 1996 funds and are being used to complete the reconnaissance phase of the study at full Federal expense, and if the reconnaissance report is certified to be in accord with policy, to continue into the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,400,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	1,490,000	
Reconnaissance Phase (Federal)	90,000 1/	Excludes $500,000 for reconnaissance phase study for Seven
Feasibility Phase (Federal)	700,000	Oaks and Prado Dams appropriated under Construction,
Feasibility Phase (Non-Federal)	700,000	General.

The reconnaissance phase is scheduled for completion in September 1996. A completion date is being determined for this feasibility study.

Russian River, Ecosystem Restoration	1,125,000	0	74,000	386,000	665,000

The study area consists of the Russian River, which is 110 miles long and flows into the Pacific Ocean about 55 miles north

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

d. Special Studies: California, Russian River, Ecosystem Restoration (Cont'd)

of the entrance to San Francisco Bay. The Corps constructed two multi-purpose reservoirs in the watershed, Lake Mendocino (Coyote Dam) and Lake Sonoma (Warm Springs Dam), and has also constructed other flood control improvements in the area. Problems reported include a significant drop in the water level of the main stem of the river which has caused tributaries to the river to downcut, undermining bridges and exposing water and sewer lines; a lowering of groundwater levels along the floodplain adjacent to the downcut river channel, causing problems for both local water companies and landowners; and current dam operations are believed to have contributed to bank failure, channel scour, and associated loss of both riparian wetlands and private lands. This loss of habitat has affected several species of anadromous fish, now candidates for Federal endangered species status. The reconnaissance study will address the effects of the operation of the two dams and the other flood control improvements on the watershed, restoration of a sustainable riparian ecosystem and anadromous fish habitat, and other beneficial uses. The California State Coastal Conservancy, the local sponsor expressed support for the study in May 1995, understands the two-phase planning process, and is willing to participate in 50-50 cost sharing of feasibility phase studies. A Feasibility Cost Sharing Agreement is scheduled to be signed in September 1997.

Fiscal Year 1996 funds are being used to initiate the reconnaissance phase at full Federal expense. The funds requested for Fiscal year 1997 will be used to complete the reconnaissance phase of the study, and if the reconnaissance report is certified to be in accord with policy, to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,350,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,800,000
Reconnaissance Phase (Federal)	450,000
Feasibility Phase (Federal)	675,000
Feasibility Phase (Non-Federal)	675,000

The reconnaissance phase is scheduled for completion in September 1997. A completion date is being determined for this feasibility study.

Sacramento-San Joaquin Delta	5,940,000	3,954,000	100,000	600,000	1,286,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

d. Special Studies: California, Sacramento-San Joaquin Delta (Cont'd)

The study area is located in Sacramento, San Joaquin, and Contra Costa Counties, California and extends from Walnut Grove south to Tracy and from the city of Stockton west to Suisun Bay. The area within the Sacramento-San Joaquin Delta consists of about 700,000 acres of land segregated into some 100 tracts and islands, bounded by interconnecting waterways and surrounded by 1,100 miles of levees which normally prevent the lands from being inundated by high tides or high river stages. However, flood protection is inadequate for the islands and tracts within the study area. Over 140 levee failures have occurred in the Delta since 1900. About 30 of these failures have occurred since 1980. Lands within these levees are among the most productive agricultural lands in the State, and failures due to levee instability are becoming more prevalent. The major reasons for this instability are the subsidence of island interiors and poor foundation conditions of existing levees. Also, water quality degradation occurs due to saltwater intrusion resulting from levee failures. Damages from levee failures and costs associated with maintenance work are increasing. The most recent levee failures in the study area were in February 1986, which caused damages estimated at $17 million. The purpose of the study is to determine viable improvements for flood control, salinity intrusion caused by levee failures, navigation, recreation, fish and wildlife, and long term management of the complex island/waterway network in the Delta. The State of California, the local sponsor, signed the Feasibility Cost Sharing Agreement in August 1991. The State and the Corps are conducting the cost-shared special study with the goal of producing a regional planning report for flood control, environmental restoration, and navigation.

Fiscal Year 1996 funds are being used to continue the feasibility study including levee criteria development design, geotechnical studies, risk analysis, environmental evaluation, and economic studies. The funds requested for Fiscal Year 1997 will be used to continue the study. The estimated cost of the study is $8,915,000, including $5,950,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests and $2,965,000 for earlier studies at full Federal expense. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$8,915,000
Feasibility Phase (Federal)	5,940,000
Feasibility Phase (Non-Federal)	2,975,000

A completion date is being determined for this feasibility study.

1508

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
d. Special Studies: California (Cont'd)					
Sacramento-San Joaquin, Delta, Little Holland Tract	1,150,000	189,000	216,000	150,000	595,000

Little Holland Tract is a 1640 acre island located entirely within the Yolo Bypass about 20 miles southwest of Sacramento, California. It is subject to tidal influence from the northern edge of the Sacramento-San Joaquin Delta. The Sacramento-San Joaquin Drainage District retains a flowage easement over the entire tract. This easement requires that levees surrounding the tract be kept at lower elevations than levees bordering the Yolo Bypass enabling overtopping of the tract's levees during high flow events in the Yolo Bypass. The area has been inundated and subject to tidal action continually since the levees failed in 1983. Since that time, the area has developed and matured as a tidally influenced wetland with numerous willow trees and a tule marsh in the shallower, northern end of the tract. The California Department of Fish and Game indicates that varying water depth on the tract provides a range of habitat from shallow wading habitat for shorebirds to deeper water for diving ducks and white pelicans. The purpose of the study is to determine Federal interest in environmental restoration projects, with incidental flood damage prevention, on Little Holland Tract and the adjacent 4,750 acre Liberty Island located just west of Little Holland Tract. The State of California expressed support for the study in August 1994, understands the two-phase planning process, and is willing to participate in 50-50 cost sharing of feasibility phase studies. The Feasibility Cost Sharing Agreement is scheduled to be signed in April 1996.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase at full Federal expense. If the reconnaissance report is certified to be in accord with policy, the funds requested for Fiscal Year 1997 will be used to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,500,000 which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,000,000
Reconnaissance Phase (Federal)	400,000
Feasibility Phase (Federal)	750,000
Feasibility Phase (Non-Federal)	750,000

The reconnaissance phase is scheduled for completion in April 1996. A completion date is being determined for this feasibility study.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
d. Special Studies: California (Cont'd)					
Sacramento-San Joaquin Delta, Western Delta Islands	1,850,000	626,000	172,000	400,000	652,000

The study area includes Twitchell Island, Jersey Island, and Webb Tract which are three islands comprised of 12,500 acres located in the Western Delta area in Sacramento and Contra Costa counties, California. These islands are at risk of flooding due to levee instability. The most recent instances of flooding occurred on Webb Tract in 1950, 1955, and 1980. It is estimated that flood damages of about $45 million would occur with a 100-year flood. Due to potential flooding, over $23 million has been incurred for emergency work on these islands between 1980 and 1986. These islands are located near the western end of the Delta estuary where the Delta waters flow into Suisun Bay and San Francisco Bay. The levees on these islands not only protect the resources on the islands, but also protect the fresh water supply in the Delta which supplies over one-half of the state's irrigation and domestic water. Failure of any of these islands could cause brackish water to intrude far into the Delta degrading the water for agricultural and domestic uses and further adversely impacting existing invaluable fish and wildlife habitat. State of California Department of Water Resources studies conclude that Twitchell and Jersey Islands pose a serious threat and Webb Tract a potential threat to water quality if permanently flooded. Additionally, there is a desire among the state and local governments and environmental interests that the fish and wildlife resources of the Delta, which have diminished drastically since the turn of the century, can be restored. Protection of the Delta's resources, including protection of fish and wildlife needs and water quality for agricultural and domestic consumption, is accorded a priority by the State of California and local governments. The reconnaissance report recommends that feasibility phase studies be initiated for environmental restoration on Twitchell Island. The restoration work will also include levee strengthening to protect the restored areas. No work is currently proposed for Jersey Island or Webb Tract. The State of California expressed support for the study in October 1995, understands the two-phase planning process and is willing to participate in 50-50 cost sharing of feasibility phase studies. The Feasibility Cost Sharing Agreement is scheduled to be signed in April 1996.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase at full Federal expense and, if the reconnaissance report is certified to be in accord with policy, to continue into the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $2,400,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

1510

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

d. Special Studies: California, Sacramento-San Joaquin Delta, Western Delta Islands (Cont'd)

Total Estimated Study Cost	$3,050,000
Reconnaissance Phase (Federal)	650,000
Feasibility Phase (Federal)	1,200,000
Feasibility Phase (Non-Federal)	1,200,000

The reconnaissance phase is scheduled for completion in April 1996. A completion date is being determined for this feasibility study.

San Joaquin River Basin, Pine Flat Dam, Fish and Wildlife Habitat Restoration	1,915,000	525,000	340,000	500,000	550,000

The study area includes the Kings River watershed located east of the city of Fresno in central California. The Kings River drains 1,942 square miles into the Tulare Lakebed via the Kings River South distributary and to the San Joaquin River via the Kings River North (Fresno Slough) distributary. Pine Flat Dam, constructed by the Corps of Engineers in 1954, is located on the Kings River 25 miles east of Fresno. It creates a reservoir with a capacity of 1,000,000 acre-feet for flood control, irrigation, and related purposes. Minimal mitigation features were included to offset significant losses of stream, riparian and upland habitats along the Kings River, and vast wetlands in the Tulare Lake Basin. Consequently, degradation of fish and wildlife habitat still remains. Significant agricultural and suburban developments have occurred in the area affected by the project. A major segment of the Kings River above Pine Flat has been designated a Special Management Area under the Wild and Scenic Rivers Act of 1968. This area is designated primarily for recreational use. It also provides for the preservation of fish and wildlife resources and of natural, scenic and archeological values. The study is evaluating impacts of original project construction, minimization of lake fluctuations during fish spawning, improvement of trout population and improvement of wildlife habitat along the Kings River. The Kings River Conservation District, the local sponsor, signed the Feasibility Cost Sharing Agreement in January 1996.

Fiscal Year 1996 funds are being used to continue into the feasibility phase of the study. Funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The estimated cost of the feasibility phase is $2,780,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

d. Special Studies: California, San Joaquin River Basin, Pine Flat Dam, Fish and Wildlife Habitat Restoration (Cont'd)

Total Estimated Study Cost	$3,305,000
Reconnaissance Phase (Federal)	525,000
Feasibility Phase (Federal)	1,390,000
Feasibility Phase (Non-Federal)	1,390,000

The reconnaissance phase was completed in January 1996. A completion date is being determined for this feasibility study.

San Juan and Aliso Creeks Watershed Management	1,250,000	0	225,000	365,000	660,000

The study area is located in south Orange County, California in the vicinity of Dana Point Harbor, about 40 miles southeast of Los Angeles. The watershed covers approximately 200 square miles. The San Juan and Aliso Creeks watersheds together form a highly important habitat area supporting a variety of Federal and State-listed endangered species populations and riparian forest areas as well as being a direct link to coastal waters. Significant morphologic change has occurred in response to natural and human induced factors. Subsequent sedimentation and deposition have resulted in major environmental impacts, including wetlands degradation, sewer breaks and beach closures. This is an area which would clearly benefit from a watershed planning effort. There are numerous opportunities for environmental restoration, including wetlands, fish and wildlife habitat restoration and water quality improvements. Studies will concentrate on measures to enhance low-flow wetland development, improve water quality, and develop environmental restoration projects. The Orange County Environmental Management Agency, the local sponsor, expressed support for the study in May 1995, understands the two-phase planning process, and is willing to participate in 50-50 cost sharing of feasibility phase studies. The Feasibility Cost-Sharing Agreement is scheduled to be signed in May 1997.

Fiscal Year 1996 funds are being used to initiate the reconnaissance phase. The funds requested for Fiscal Year 1997 will be used to complete the reconnaissance phase at full Federal expense, and if the report is certified to be in accord with policy, continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,500,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind service. A summary of study cost sharing is as follows:

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

d. Special Studies: California, San Juan and Aliso Creeks Watershed Management (Cont'd)

Total Estimated Study Cost	$2,000,000
Reconnaissance Phase (Federal)	500,000
Feasibility Phase (Federal)	750,000
Feasibility Phase (Non-Federal)	750,000

The reconnaissance phase is scheduled for completion in May 1997. A completion date is being determined for this feasibility study.

Nevada

Lower Las Vegas Wash Wetlands	1,300,000	350,000	0	210,000	740,000

The study area consists of an approximate seven-mile-reach of Las Vegas Wash where urban wastewater and stormwaters from Las Vegas are adversely impacting this rare and highly valuable desert wetlands. Lower Las Vegas Wash Wetlands is located immediately southwest of the City of Las Vegas in Clark County, Nevada. Prior to 1970, the Las Vegas Wash had about 2,000 acres of wetlands. With increased flow due to urbanization, the wash has eroded and deepened, preventing water from the reaching the wetlands plants and causing their collapse and demise. Today, a rich and extensive area of marshlands, cattails and abundant wildlife has been reduced from 1,400 to 300 acres of wetlands. With each storm, large amounts of soil continue to be eroded, and the limited wetlands and bankside habitat are also being lost. Erosion control measures are needed to restore the wetlands integrity, enhance riparian habitat values, and begin to recapture the past natural characteristics. Recognizing the urgent need to restore this rich biological area, the Nevada Legislature has approved funds to carry out master planning for the wetlands restoration in the wash. During the reconnaissance study current conditions will be evaluated, and a scope, schedule and cost for feasibility study will be developed. In May 1995, Clark County Parks and Recreation expressed support for the study, understands the two-phase process, and is willing to participate in 50-50 cost sharing of the feasibility phase of the study.

The funds requested for Fiscal Year 1997 will be used to review prior study effort and update study findings. The preliminary estimated cost of the feasibility phase is $1,400,000, which is to be shared on a 50-50 percent basis by Federal and-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

d. Special Studies: Nevada, Lower Las Vegas Wash Wetlands (Cont'd)

is as follows:

Total Estimated Study Cost	1,300,000
Reconnaissance Phase (Federal)	600,000 1/
Feasibility Phase (Federal)	700,000
Feasibility Phase (Non-Federal)	700,000

1/Includes $350,000 prior reconnaissance study cost.

A completion date is being determined for this reconnaissance study. A completion date is being determined for this feasibility study.

Lower Truckee River Pyramid Lake Pauite Tribe	1,355,000	715,000	218,000	250,000	172,000

The Truckee River originates at Lake Tahoe in eastern California and flows in a northeasterly direction for about 100 miles to Pyramid Lake in northern Nevada. The reconnaissance study area is located along the lower 50 miles of the Truckee River from the Vista gauge just downstream of the city of Sparks, Nevada to Pyramid Lake. The primary water resource problem is inadequate water supplies for competing uses. This problem causes habitat deterioration for two fish species, the endangered cui-ui and the threatened Lahontan cutthroat trout. There has been extensive litigation over allocation of water rights with the United States as a litigant. Initial reconnaissance study findings in February 1992 addressed fish and wildlife habitat restoration, erosion, changes in operations of Federal projects, and flood control. The study identified three conceptual river management plans that could contribute to the restoration of habitat for the endangered cui-ui and the threatened Lahontan cutthroat trout. Each of the three plans included features that could help resolve some of the problems in the study area. The reconnaissance study scope was broadened in Fiscal Year 1994 to focus on ecosystem restoration of the overall river. Two feasibility studies resulted from the reconnaissance study. The focus of this feasibility study is on environmental restoration benefiting the Paiute Tribe along the Lower Truckee River from Pyramid Lake to the Pyramid Lake Paiute Tribe reservations southerly boundary near the community of Wadsworth. The other feasibility study recommended in the reconnaissance report is being conducted with Washoe County. The Pyramid Lake Paiute Tribe expressed support for this study in December 1995, understands the two phase planning process, and is willing to discuss participating in 50-50 cost sharing of feasibility phase studies. The Feasibility Cost Sharing Agreement is scheduled to be signed in March 1996.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

d. Special Studies: Nevada, Lower Truckee River, Pyramid Lake Paiute Tribe (Cont'd)

Fiscal Year 1996 funds are being used to complete the reconnaissance phase of the study at full Federal expense, and, if the reconnaissance report is certified in accord with policy, to continue into the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase. The estimated cost of the feasibility phase is $1,200,000, which is be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,955,000
Reconnaissance Phase (Federal)	755,000
Feasibility Phase (Federal)	600,000
Feasibility Phase (Non-Federal)	600,000

The reconnaissance phase is scheduled for completion in March 1996. A completion date is being determined for this feasibility study.

Lower Truckee River Washoe County	790,000	236,000	91,000	250,000	213,000

The Truckee River originates at Lake Tahoe in eastern California and flows in a northeasterly direction for about 100 miles to Pyramid Lake in northern Nevada. The reconnaissance study area is located along the lower 50 miles of the Truckee River from the Vista gauge just downstream of the city of Sparks, Nevada to Pyramid Lake. The primary water resource problem is inadequate water supplies for competing uses. This problem causes habitat deterioration for two fish species, the endangered cui-ui and the threatened Lahontan cutthroat trout. There has been extensive litigation over allocation of water rights with the United States as a litigant. Initial reconnaissance study findings in February 1992 addressed fish and wildlife habitat restoration, erosion, changes in operations of Federal projects, and flood control. The study identified three conceptual river management plans that could contribute to the restoration of habitat for the endangered cui-ui and the threatened Lahontan cutthroat trout. Each of the three plans included features that could help resolve some of the problems in the study area. The reconnaissance study scope was broadened in Fiscal Year 1994 to focus on ecosystem restoration of the overall river. Two feasibility studies resulted from the reconnaissance study. This feasibility study will evaluate a river corridor restoration plan from Vista gauge to the Paiute Tribe Reservation Boundary near the Truckee Canal. The other feasibility study recommended in the reconnaissance report is being conducted with the Paiute Tribe of

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

d. Special Studies: Nevada, Lower Truckee River, Washoe County (Cont'd)

Pyramid Lake. The river corridor restoration plan will incorporate recommendations from the Washoe County regional open space program adopted in December 1994. Washoe County, the local sponsor, expressed support for this study in December 1995 and is willing to consider participating in 50-50 cost sharing of feasibility phase studies. The Feasibility Cost Sharing Agreement is scheduled to be signed in July 1996.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase of the study at full Federal expense, and, if the reconnaissance report is certified to be in accord with policy, to continue into the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase. The estimated cost of the feasibility phase is $1,000,000, which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,290,000
Reconnaissance Phase (Federal)	290,000
Feasibility Phase (Federal)	500,000
Feasibility Phase (Non-Federal)	500,000

The reconnaissance phase is scheduled for completion in July 1996. A completion date is being determined for this feasibility study.

TOTAL SPECIAL STUDIES	31,695,000	10,363,000	3,537,000	7,050,000	10,745,000

e. Comprehensive Studies: None

f. Project Review Studies: The amount of $257,000 is requested to continue one study in Fiscal Year 1997.

Arizona

Alamo Lake	1,030,000	468,000	112,000	257,000	193,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

f. Project Review Studies: Arizona, Alamo Lake (Cont'd)

The study area is located along the Bill Williams River at and below Alamo Dam and Reservoir in western Arizona and is about 120 miles northwest of the city of Phoenix. The project was constructed and completed in 1968 by the Corps for the authorized purposes of flood control, water conservation and recreation. A reconnaissance study completed in 1990 identified opportunities to reoperate the dam for water conservation and recreation purposes. However, since the viable alternatives identified in that study could be accomplished within existing Corps authority, further activities and operational recommendations concerning the project were addressed under the Operation and Maintenance, General program. Subsequent studies of the river corridor from the reservoir to the Colorado River, which were conducted by the State of Arizona and environmental resource agencies, indicate that the river flows can affect riparian habitat, including habitat at the Bill Williams National Wildlife Refuge. This study will review the findings of the previous reconnaissance investigation and will evaluate the feasibility of modification of storage allocation and operation of the dam for fish and wildlife restoration and enhancement purposes. The local sponsor will be identified during the reconnaissance phase. The Feasibility Cost-Sharing Agreement is scheduled to be signed in October 1996.

Fiscal Year 1996 funds are being used to complete the reconnaissance phase of the study at full Federal expense. If the reconnaissance report is certified to be in accord with policy, the funds requested for Fiscal Year 1997 will be used to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $900,000 which is to be shared on a 50-50 basis by the Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,480,000	
Reconnaissance Phase (Federal)	580,000 1/	Includes $380,000 for Section 216
Feasibility Phase (Federal)	450,000	study completed in 1989.
Feasibility Phase (Non-Federal)	450,000	

The reconnaissance phase is scheduled for completion in October 1996. A completion date is being determined for this feasibility study.

TOTAL PROJECT REVIEW STUDIES	1,030,000	468,000	112,000	257,000	193,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
TOTAL SURVEYS CONTINUING	70,211,000	25,126,000	9,192,000	15,428,000	21,065,000
TOTAL SURVEYS	71,211,000	25,126,000	9,192,000	15,528,000	21,365,000

3. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED), NEW: None

4. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED), CONTINUING:

a. Navigation: The amount of $689,000 is requested to complete two PED activities in Fiscal Year 1997.

California

Crescent City Harbor	660,000	0	165,000	495,000	0

The project is located 290 miles north of San Francisco, California and 17 miles south of the Oregon border. The harbor provides a home port and sanctuary for a west coast commercial fishing fleet consisting of 200 fishing vessels and the Coast Guard Search, Rescue and Fishing Patrol. Sand accretion in the inner harbor area has restricted access for commercial fishing vessels from the inner harbor to the loading facilities and fish boat basin mooring area. Studies under the Section 107 Continuing Authorities Program were recently terminated when it became apparent that the proposed improvements, which were determined economically feasible, duplicated previously authorized but unconstructed project improvements. The recommended project, estimated to cost $1,887,000 with an estimated Federal cost of $1,698,000 and an estimated non-Federal cost of $189,000, includes deepening the access channel from the inner harbor to the fish boat basin and the loading facilities to a depth of 15 feet. The average annual benefits amount to $438,800 all for commercial navigation. The benefit-cost ratio is 1.9 to 1 at 7 3/4 percent based on the latest economic analysis dated October 1994. The project is not yet authorized for construction. The Crescent City Harbor District, the local sponsor, expressed support for the project in December 1994 and is aware of project cost sharing requirements.

In accordance with cost sharing and financing concepts reflected in the Water Resource Development Act of 1986, local interests will be required to provide lands, easements, and rights-of-way and dredged material disposal areas; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities where necessary for the

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

a. Navigation: California, Crescent City Harbor (Cont'd)

construction of the project; pay 10 percent of the costs of construction of the portion of the project which has a depth not in excess of 20 feet; 25 percent of the portion which has a depth in excess of 20 feet; but not in excess of 45 feet; 50 percent of the portion which has a depth in excess of 45 feet and pay 10 percent of the costs allocated to navigation within a period of 30 years following completion (if not offset by a credit allowed for lands, easements, rights-of-way, relocations, and dredged material disposal areas).

Fiscal Year 1996 funds are being used to initiate preconstruction engineering and design. Fiscal Year 1997 funds will be used to complete preconstruction engineering and design in August 1997.

Port of Long Beach (Deepening)	750,000	0	556,000	194,000	0

The Port of Long Beach is located in Southern California along the Pacific coast in San Pedro Bay about 20 miles southwest of downtown Los Angeles. Deepening of the approach and entrance channels at the port is needed to accommodate large deep-draft crude tankers, which are presently arriving at the port loaded below their capacity. As the demand and import of foreign crude oil and other commerce increases in the future, there will be a greater demand for larger tanker and other liquid bulk vessels to be used at the Port of Long Beach to gain economies of scale. The Los Angeles and Long Beach Harbors feasibility study, completed in September 1992, indicated that a project for deepening the Long Beach channels to a depth of 75 feet was economically justified. These findings were used as the basis for a reconnaissance study completed in October 1994. The Energy and Water Development Appropriations Act 1995, included $500,000 to conduct a feasibility study for Long Beach Harbor. The feasibility report was completed in November 1995. The estimated project cost to deepen the Long Beach channel is $36.4 million, with an estimated Federal cost of $14.7 million and an estimated non-Federal cost of $21.7 million. Estimated average annual benefits are $34.7 million, all commercial navigation. The benefit-cost ratio is 6.7 to 1 at 7-3/4 percent. The Port of Long Beach, the local sponsor, expressed support for the project in March 1994 and is aware of project cost-sharing requirements.

The project is authorized for construction by the Water Resources Development Act of 1986, pending a favorable Chief of Engineers' Report. The non-Federal sponsor will be required to provide lands, easements, rights-of-way, and dredged material disposal areas, if necessary in the construction of the project; modify or relocate buildings, utilities, roads, and other facilities, except railroad bridges, if necessary in the construction of the project; pay 10 percent of the cost

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
a. Navigation: California, Port of Long Beach (Deepening) (Cont'd)					

of construction of the portion of the project which has a depth not in excess of 20 feet; plus 25 percent which has a depth in excess of 20 feet but not in excess of 45 feet; plus 50 percent of the cost of construction of the portion of the project which has a depth in excess of 45 feet; and pay an additional 10 percent of the costs allocated to navigation within a period of 30 years following completion (if not offset by a credit allowed for lands, easements, rights-of-way, relocations, and dredged material disposal areas) and credit for work performed, authorized by the Water Resources Development Act of 1988.

Fiscal Year 1996 funds are being used to initiate preconstruction engineering and design. Fiscal Year 1997 funds will be used to complete preconstruction engineering and design in December 1996.

TOTAL NAVIGATION	1,410,000	0	721,000	689,000	0

b. Flood Control: The amount of $6,510,000 is requested to continue six PED activities and complete one PED activity in Fiscal Year 1997.

Arizona

Tucson Drainage Area	1,725,000	0	0	500,000	1,225,000

The project is located in the city of Tucson, in eastern Pima County, Arizona. Floods on many of the streams flowing into the Santa Cruz River have caused serious damage annually to urban properties, highways and bridges within the city of Tucson, the second largest city in Arizona. The 1990 Flood Insurance Study maps identify significant flooding problems in several areas, including the Tucson Arroyo and Arroyo Chico Wash, which drain central and downtown Tucson. Increased urbanization has changed the characteristics of runoff conditions and has left the existing systems for this region inadequate. Erosion and deposition of debris have resulted from extensive flooding. Over 1,000 additional acres of urban area along more than 10 miles of the major washes lie in the 100-year floodplain today. Extensive damages were recorded throughout the urban and agricultural area due to a major flood in October 1983 which caused $50 million in flood damages, $66.4 million at current prices. A feasibility report is scheduled to be completed in February 1997. The recommended project, estimated to cost $24 million with an estimated Federal cost of $18 million and an estimated non-Federal cost of

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

b. Flood Control: Arizona, Tucson Drainage Area (Cont'd)

$6 million, includes construction of a flood control system of three detention basins. The average annual benefits amount to $4.4 million, all for flood control. The benefit-cost ratio is 2.5 to 1 based upon the latest economic analysis dated July 1991. Pima County Flood Control District, the local sponsor, expressed support for project in July 1992. The project is not yet authorized for construction.

In accordance with the cost sharing and financing concepts currently being proposed by the Department of the Army, and being discussed among the Administration and the Congress, local interests will be required to provide lands, easements, rights-of-way and borrow and excavated or dredged material disposal areas, modify or relocate utilities, roads, bridges, (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent of the costs allocated to flood control in cash during the period of construction; contribute an additional amount in cash or credits to bring the total non-Federal share of costs allocated to structural flood control to 50 percent; and bear all costs of operations, repair, replacement, and maintenance of flood control facilities. Communities must agree to adopt additional flood plain management activities, beyond the current requirement to participate in the National Flood Insurance Program, in order to qualify for Federal participation in a structural flood damage reduction project under the terms as described above. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of stormwater runoff, and preservation of open space.

Fiscal Year 1997 funds will be used to initiate preconstruction engineering and design. The preliminary estimated cost of preconstruction and engineering and design is $2,300,000, which is to be cost shared on a 75-25 percent basis by Federal ($1,725,000) and non-Federal ($575,000) interests. A completion date is being determined for preconstruction engineering and design.

California

American River Watershed	19,200,000	12,742,000	2,223,000	3,500,000	735,000

The American River Watershed drains about 2,100 square miles of mostly mountainous area along the westward face of the Sierra Nevada in northern California counties of Placer, El Dorado and Sacramento. It is comprised of three principal streams which are the North Fork, Middle Fork, and South Fork of the American River that flow generally westward into Folsom

1521

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

b. Flood Control: California, American River Watershed (Cont'd)

Lake, through the city of Sacramento and into the Sacramento River. Folsom Lake and levees along the lower American River, Sacramento River, and tributary streams and channels provide flood protection to the highly urbanized Sacramento area. Potentially flooded areas during rare flood events could have an impact on approximately 410,000 people, and an estimated $37 billion in property value. Recent evaluations indicate that the level of flood protection along much of the American River and in the Natomas area is less than the 100-year level. The February 1986 storms filled Folsom Lake and necessitated record releases in excess of design flows downstream. Because of the significant threat, 500 people were put on "levee watch" as these record flows passed through the city of Sacramento. Due to the 1986 storms, an extensive flood fighting effort was made by the Corps at a cost of $3 million and an additional $10 million was required for post flood repair work. This project will provide increased flood protection for the study area. The Division Engineer's notice for the American River Watershed Investigation cost shared feasibility study was issued in February 1992. The plan of improvement recommended in the feasibility report provides 200-year level of flood protection including a peak flow control dam in the vicinity of River Mile 20.1 near Auburn, levee improvements around the perimeter of the Natomas Basin, and a 300 acre detention area in North Natomas. Recreation trails are also included. The currently recommended plan is estimated to cost $788 million, and would have a benefit-cost ratio of 3.0 to 1 at 7.75 percent based upon the latest economic analysis dated February 1992. The average annual benefits amount to $175.5 million ($173.8 million for flood control and $1.7 million for recreation). The State of California and the Sacramento Area Flood Control Agency have stated their intention to be the non-Federal sponsors for the flood control portion of the project. The City and County of Sacramento will be the non-Federal sponsors for the recreation portion of the project. The Defense Appropriations Act for Fiscal Year 1993 authorized construction of the Natomas feature but directed the Corps to reevaluate findings of the American River Watershed Investigation feasibility study. Levee improvements, in the Natomas Area, authorized by the Defense Appropriations Act are being designed and constructed by the local sponsor. In accordance with the Act, a Supplemental Information Report is being prepared which will include information on gating and expandability of the flood control dam and a special evaluation of other features and operation procedures that should be implemented in a coordinated plan to provide flood protection sufficiently high for a major urban area subject to risk of frequent floods. Also in accordance with the Act, a flood management plan has been developed jointly by the Secretaries of the Army and Interior that insures prompt, reliable and full utilization of the flood control capability at Folsom Dam and other existing water resources development projects located in the American River watershed.

In accordance with the cost sharing and financing concepts currently being proposed by the Department of the Army, and being discussed among the Administration and the Congress, local interests will be required to provide lands, easements, rights-

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

b. Flood Control: California, American River Watershed (Cont'd)

of-way and borrow and excavated or dredged material disposal areas, modify or relocate utilities, roads, bridges, (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent of the costs allocated to flood control in cash during the period of construction; contribute an additional amount in cash or credits to bring the total non-Federal share of costs allocated to structural flood control to 50 percent; and bear all costs of operations, repair, replacement, and maintenance of flood control facilities. Communities must agree to adopt additional flood plain management activities, beyond the current requirement to participate in the National Flood Insurance Program, in order to qualify for Federal participation in a structural flood damage reduction project under the terms as described above. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of stormwater runoff, and preservation of open space.

Fiscal Year 1996 funds are being used to continue review of the locally designed levee improvements for the Natomas feature of the project, as well as inspection of local construction of those improvements; complete the Supplemental Information Report as directed in the Defense Appropriations Act; and proceed with design activities for the selected plan identified in the Supplemental Information Report. Fiscal Year 1997 funds will be used to continue design review and inspection of levee construction of Natomas and continue design activities for the selected plan identified in the Supplemental Information Report. A completion date is being determined for preconstruction engineering and design.

Kaweah River	3,900,000	0	50,000	600,000	3,250,000

The project area is located within the Tulare Lake Basin and located in the southeastern portion of the San Joaquin Valley, between the cities of Fresno and Bakersfield, California. The Kaweah River originates in the Sierra Nevada mountains and drains about 560 square miles into Lake Kaweah (Terminus Lake). From Lake Kaweah it passes near the city of Visalia, with a population of about 89,000, as it flows west into the Tulare Lakebed. Terminus Dam was completed in 1962 to provide flood control and irrigation water supply. However, significant flood damages to communities and highly developed agricultural lands along the Kaweah River have continued to occur. Flood releases beyond Terminus Dam capacity have contributed to flood damages to agricultural lands in the Tulare Lakebed. The December 1966 rainflood exceeded the design capacity of Terminus Dam and floodflows passing downstream of the dam resulted in about $1.0 million in damages below the dam, under conditions and prices at that time. These downstream flows peaked at about 5,700 cubic feet per second and inundated about 8,000 acres. The most recent flooding in 1983 caused extensive and widespread damages to properties in the Tulare Lakebed area

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

b. Flood Control: California, Kaweah River (Cont'd)

where losses attributed to the Kaweah River were estimated at $17.6 million. The cost shared feasibility study is currently scheduled for completion in August 1996. The potential project, estimated to cost $34.8 million with an estimated Federal cost of $25.3 million and an estimated non-Federal cost of $9.5 million (October 1995 price level), includes enlarging Lake Kaweah by 43,000 acre feet. The average annual benefits amount to $3,850,000 ($3,552,000 for flood control, $271,000 for irrigation water supply, $17,000 for bridge replacement, $214,000 for employment benefits, partially offset by a reduction of $204,000 in recreation). The benefit-cost ratio is 1.3 to 1 at 7 3/4 percent based upon the latest economic analysis dated September 1992. The Kaweah Delta Water Conservation District, the local sponsor, expressed support for the project in July 1994. The project is not yet authorized for construction.

In accordance with the cost sharing and financing concepts currently being proposed by the Department of the Army, and being discussed among the Administration and the Congress, local interests will be required to provide lands, easements, rights-of-way and borrow and excavated or dredged material disposal areas, modify or relocate utilities, roads, bridges, (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent of the costs allocated to flood control in cash during the period of construction; contribute an additional amount in cash or credits to bring the total non-Federal share of costs allocated to structural flood control to 50 percent; and bear all costs of operations, repair, replacement, and maintenance of flood control facilities. Communities must agree to adopt additional flood plain management activities, beyond the current requirement to participate in the National Flood Insurance Program, in order to qualify for Federal participation in a structural flood damage reduction project under the terms as described above. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of stormwater runoff, and preservation of open space.

Fiscal Year 1996 funds are being used to initiate preconstruction engineering and design. Fiscal Year 1997 funds will be used to continue preconstruction engineering and design. A completion date is being determined for preconstruction engineering and design.

Napa River	13,000,000	11,113,000	937,000	700,000	250,000

The project is located in the city and county of Napa, California. The population in the City of Napa, approximately 66,000 in 1994, is expected to exceed 77,000 by the year 2000. Excluding public facilities, the present value of damageable

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

b. Flood Control: California, Napa River (Cont'd)

property within the project floodplain is over $500 million. The Napa River Basin, comprising 426 square miles, ranging from tidal marshes to mountainous terrain, is subject to severe winter storms and frequent flooding. In the lower reach of the river, flood conditions are aggravated by high tides and local runoff. Floods in the Napa area have occurred in 1955, 1958, 1963, 1965, 1986 (flood of record) and 1995. The December 1955 flood inundated 4,900 acres within the project area. Damages during the February 1986 flood amounted to over $100 million and the flood forced the emergency evacuation of approximately 5,000 residents. Most recent flooding occurred in January and March 1995. The preliminary damage assessments for the January and March 1995 floods report property damages of $5.5 million and $10.8 million, respectively. Almost all of the damages from the 1986 and 1995 floods within the project area would have been prevented by the project. The previously approved flood control plan included 11 miles of enlarged channels, levees, and floodwalls, and recreation facilities along Napa River and would provide a high level of protection. However, the local sponsor, Napa County Flood Control and Water Conservation District has expressed interest in developing a reduced scope plan. The current plan is physically smaller than the survey report plan but still provides 100-year level of protection to the City of Napa from flooding on the Napa River and Napa Creek. Channel improvements under the current plan include excavation and widening, sheetpile walls, floodwalls, levees, training dikes and a bypass channel. The plan also includes recreation trails and environmental mitigation. Napa County Flood Control and Water Conservation District is the local sponsor for flood control and the City of Napa is the local sponsor for recreation. The recommended plan is currently estimated to cost $124 million. The average annual benefits for flood control on Napa River and Napa Creek are estimated at $15,260,000; the average annual benefits for recreation on Napa River are estimated at $300,000. The benefit-cost ratio is 1.3 to 1 at 7 3/4 percent based on the latest economic analysis dated March 1995.

The project was authorized for construction by the Flood Control Act of 1965. Authorization was modified by The Flood Control Act of 1976 to include Napa Creek improvements. In accordance with the cost sharing and financing concepts currently being proposed by the Department of the Army, and being discussed among the Administration and the Congress, local interests will be required to provide lands, easements, rights-of-way and borrow and excavated or dredged material disposal areas, modify or relocate utilities, roads, bridges, (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent of the costs allocated to flood control in cash during the period of construction; contribute an additional amount in cash or credits to bring the total non-Federal share of costs allocated to structural flood control to 50 percent; and bear all costs of operations, repair, replacement, and maintenance of flood control facilities. Communities must agree to adopt additional flood plain management activities, beyond the current requirement to participate in the National Flood Insurance Program, in order to qualify for Federal participation in a

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

b. Flood Control: California, Napa River (Cont'd)

structural flood damage reduction project under the terms as described above. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of stormwater runoff, and preservation of open space.

Fiscal Year 1996 funds are being used to continue preconstruction engineering and design. Fiscal Year 1997 funds will be used to continue preconstruction engineering and design. A completion date is being determined for preconstruction engineering and design.

Pajaro River at Watsonville	1,770,000	389,000	300,000	810,000	271,000

The project is located in the city of Watsonville and vicinity, about 100 miles south of San Francisco, California. The city of Watsonville has experienced continued flooding from the Pajaro River and from its tributaries, Corralitos and Salsipuedes Creeks. The construction of levees to provide a 50-year level of flood protection was completed by the Corps of Engineers in June 1949. Project improvements included about 11.8 miles of levee construction on Pajaro River and 2.4 miles on Corralitos Creek. Subsequently, two major floods nearly exceeded the capacity of the project and additional studies were authorized, identifying a feasible project. The project, authorized in November 1966, was designed to provide a high level of flood protection to the area. During advanced engineering studies, the local sponsor was unable to support any of the alternatives being proposed, and the project was placed in a deferred status. Increased flooding upstream of the existing project in the early 1980's, resulted in the local sponsor renewing support for additional studies of the flood problems in the area. The existing project provides less than a 20-year level of flood protection along the Pajaro River due to changes in basin hydrology. The recommended project, estimated to cost $13.6 million with an estimated Federal cost of $10.2 million and an estimated non-Federal cost of $3.4 million, includes construction of floodwalls and/or levees along Salsipuedes and Corralitos Creeks, which will provide a 47-year level of protection. The average annual benefits amount to $2,530,000, all for flood control. The benefit-cost ratio is 3.4 to 1 at 8 percent based upon the latest economic analysis dated November 1993. The project is not yet authorized for construction. The Counties of Santa Cruz and Monterey, the local sponsors, expressed support for the study in May 1993, and are aware of project cost sharing requirements.

In accordance with the cost sharing and financing concepts currently being proposed by the Department of the Army, and being

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $

b. Flood Control: California, Pajaro River at Watsonville (Cont'd)

discussed among the Administration and the Congress, local interests will be required to provide lands, easements, rights-of-way and borrow and excavated or dredged material disposal areas, modify or relocate utilities, roads, bridges, (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent of the costs allocated to flood control in cash during the period of construction; contribute an additional amount in cash or credits to bring the total non-Federal share of costs allocated to structural flood control to 50 percent; and bear all costs of operations, repair, replacement, and maintenance of flood control facilities. Communities must agree to adopt additional flood plain management activities, beyond the current requirement to participate in the National Flood Insurance Program, in order to qualify for Federal participation in a structural flood damage reduction project under the terms as described above. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of stormwater runoff, and preservation of open space.

Fiscal Year 1996 funds are being used to continue preconstruction engineering and design. Fiscal Year 1997 funds will be used to continue preconstruction engineering and design. A completion date is being determined for preconstruction engineering and design.

Seven Oaks Dam Water Conservation	750,000	0	0	250,000	500,000

Seven Oaks Dam is located on the Santa Ana River in San Bernardino County, California. Water conservation is an increasingly important consideration in the arid Southern California environment. At a time when imported water supplies are being reduced, it is essential that additional sources of clean water be investigated in an area of rapid population growth. The feasibility report is scheduled to be completed January 1997. The proposed construction project, estimated to cost $11,100,000, all non-Federal, includes modification to the intake structure of the outlet works, currently being constructed under the Santa Ana River Mainstem project. The bulkhead, bulkhead guides, bridge and access to the tower at elevation 2,418 feet would have to be modified for the conservation pool. The average annual benefits amount to $1,187,800, all for water conservation. The benefit-cost ratio is 1.2 to 1, based upon the latest economic analysis dated October 1992. The San Bernardino County Flood Control District, the local sponsor, fully understands that construction costs are at full non-Federal expense.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
b. Flood Control: California, Seven Oaks Dam Water Conservation (Cont'd)					

The funds requested for Fiscal Year 1997 will be used to initiate preconstruction engineering and design. The preliminary estimated cost of preconstruction engineering and design is $1,000,000 which is to be cost shared on a 75-25 percent basis by Federal ($750,000) and non-Federal ($250,000) interests. A completion date is being determined for preconstruction engineering and design.

Winters and Vicinity	150,000	0	0	150,000	0

The project area is in southwestern Yolo County approximately 30 miles west of Sacramento, California. The city of Winters is located along Putah Creek and Dry Creek and is bordered to the north by Moody Slough and Chickahominy Slough. Winters, population 5,000, floods every two to five years due primarily to inadequate flow capacity of Moody Slough. Construction improvements of County Road 89 and Interstate Highway 505 have increased flooding problems in the area and have subjected portions of Winters to flooding by preventing naturally occurring drainage to the east of Winters. Flooding has also occurred from Dry Creek, Putah Creek, Chickahominy Slough and multiple local canals. During the January and March 1995 floods, determined to have been roughly 20-year flood events, over 40 homes were inundated and the Highway 128 bridge was damaged. The 1980 flood covered more than 12,000 acres and flooding during extended rainstorms has caused damage to structures, streets and roads, agricultural land, equipment and crops. The area to the northeast of Winters is susceptible to significant damage as development occurs in areas designated for light and heavy industrial uses. The feasibility study is scheduled for completion in November 1996. The recommended project includes enlargement of diversion facilities and levee construction. Moody Slough would be enlarged and three culverts would be added at Interstate Highway 505. The construction cost is estimated at $1,500,000, with both a Federal and non-Federal cost of $750,000. The average annual benefits amount to $1,600,00, all for flood control. The benefit-cost ratio is 14.0 to one at 7 3/4 percent based on the latest economic analysis dated January 1996. The City of Winters, the local sponsor, expressed support for the project in April 1995. The project is not yet authorized for construction.

In accordance with the cost sharing and financing concepts currently being proposed by the Department of the Army, and being discussed among the Administration and the Congress, local interests will be required to provide lands, easements, rights-of-way and borrow and excavated or dredged material disposal areas, modify or relocate utilities, roads, bridges, (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent of the costs allocated to flood control in cash during the period of construction; contribute an additional amount in cash or credits to bring the total non-Federal share of costs allocated to structural flood control to 50 percent; and bear all costs of

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
b. Flood Control: California, Winters and Vicinity (Cont'd)					

operations, repair, replacement, and maintenance of flood control facilities. Communities must agree to adopt additional flood plain management activities, beyond the current requirement to participate in the National Flood Insurance Program, in order to qualify for Federal participation in a structural flood damage reduction project under the terms as described above. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of stormwater runoff, and preservation of open space.

Fiscal Year 1997 funds will be used to initiate and complete preconstruction engineering and design. The preliminary estimated cost of preconstruction engineering and design is $200,000 which is to be cost shared on a 75-25 percent basis by Federal ($150,000) and non-Federal ($50,000) interests. Preconstruction engineering and design is scheduled for completion in June 1997.

TOTAL FLOOD CONTROL	40,495,000	24,244,000	3,510,000	6,510,000	6,231,000
c. Shoreline Protection: None					
d. Multiple Purpose Power: None					
TOTAL PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES, CONTINUING	41,905,000	24,244,000	4,231,000	7,199,000	6,231,000
TOTAL PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES	41,905,000	24,244,000	4,231,000	7,199,000	6,231,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional to Complete After FY 1997 $
GRAND TOTAL - SURVEYS AND PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES	113,116,000	49,370,000	13,423,000	22,727,000	27,596,000

APPROPRIATION TITLE: Construction, General - Navigation (Channel and Harbors)

PROJECT: Los Angeles Harbor, California (Continuing)

LOCATION: Los Angeles Harbor is located on the coast of southern California in San Pedro Bay, about 25 miles south of downtown Los Angeles, and adjacent to the city of Long Beach.

DESCRIPTION: The project consists of four increments of dredging, deepening the existing entrance channel, and providing new channels to existing and new port facilities. The dredge material will be used for fill to create Pier 400. Mitigation will include a new shallow water habitat within the harbor and other biological mitigation measures along the coast of California.

AUTHORIZATION: Water Resources Development Acts of 1986, 1988 and 1990.

REMAINING BENEFIT-REMAINING COST RATIO: 2.1 to 1 at 8 percent

TOTAL BENEFIT-COST RATIO: 2.1 to 1 at 8 percent

INITIAL BENEFIT-COST RATIO: 2.1 to 1 at 8 percent (FY 1996).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available reevaluation in the Supplemental Information Report to the Final Feasibility Report dated August 1993, at October 1993 price levels.

SUMMARIZED FINANCIAL DATA		ACCUMULATED PCT OF EST FED COST	STATUS (1 JAN 96)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Appropriation Requirement (CoE)	$121,700,000		Stage 1	60	Jul 1997
Estimated Appropriation Requirement (USCG)	300,000		Stage 2	Not Started	Being Determined
Estimated Total Appropriation Requirement	122,000,000		Entire Project	40	Being Determined
Future Non-Federal Reimbursement	21,000,000		Stage 1 includes all of Increments 2 and 4, a small portion of Increment 3 main channel, and almost one-half of Increment 5. Stage 2 includes the remainder of Increments 3 and 5.		
Estimated Federal Cost (Ultimate)	$101,000,000				

			ACCUMULATED	PCT OF EST
				FED COST
Estimated Non-Federal Cost		$300,000,000		
Cash Contributions	$ 112,000,000			
Other Costs, (Advance Construction and Lands)	167,000,000			
Reimbursements	21,000,000			
Total Estimated Cost		$401,000,000		
Allocations to 30 September 1995		$4,090,000		
Conference Allowance for FY 1996		250,000		
Allocation for FY 1996		550,000	1/	
Allocations through FY 1996		4,640,000		5
Allocation Requested for FY 1997		850,000		5
Programmed Balance to Complete after FY 1997		116,210,000		

1/ Reflects $21,000 reduction assigned as savings and slippage and $321,000 reprogrammed to the project.

PHYSICAL DATA

Increment 2: Entrance Channel Dredging
Dredge entrance channel to 63 feet
Create 168 acres of new Pier 400 land and causeway
Restore 158 acres of tidal lagoon near Carlsbad
Create 91 acres of shallow water habitat at breakwater near Angel's Gate

Increment 3: Main and South Channel
Dredge main entrance channel to 81 feet; south channel to 75 feet
Create 354 acres of new Pier 400 land
Restore 225 acres of tidal lagoon near Carlsbad
Restore 126 acres of tidal wetlands at Ballona Creek or equivalent

Increment 4: North Channel Dredging
Dredge 3,700 linear feet of north channel to 45 feet
Create 55 acres of new Pier 400 land
Restore 45 acres of tidal wetlands at Ballona Creek or equivalent

Increment 5: North Channel Extension
Extend north channel 2,500 linear feet at 45-foot-depth
Create 22 acres of new Pier 400 land
Restore 22 acres of tidal wetlands at Ballona Creek or equivalent

JUSTIFICATION: Los Angeles and Long Beach Harbors serve the entire Pacific Southwest, and goods pass through the ports to or from all 50 states. Population of the tributary area has increased from 10.7 million in 1960 to over 25.4 million in 1990, and is expected to increase to 34.5 million by the year 2000. Cargo throughput in the Los Angeles-Long Beach Harbors is estimated to increase from the 92.2 million tons in 1992 to over 260 million tons by the year 2020. The outer harbors have need for greater depths to support present and future fleets of tanker and bulk vessels. There is a potential deficiency in onshore facilities, depths of channels, and available land resources to accommodate cargo projections to the year 2020. The Port of Long Beach withdrew from the project in October 1991. The feasibility process for the Port of Long Beach was subsequently resumed, and is now addressed as a separate project. Average annual benefits, all commercial navigation, are $99,396,000 at October 1993 price levels.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue monitoring Port's construction of Stage 1, continue wave gage monitoring to validate Stage 1 design, finalize plans & specs for Stage 2.	$850,000
Total	$850,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

y

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Provide lands, easements, rights-of-ways, and borrow and excavated or dredged material disposal areas.	$ 54,900,000	$
Pay 56 percent (average of variable depths) of the costs allocated to general navigation facilities during construction and pay 50 percent of the costs of incremental maintenance below 45 feet below mean low water ($112,100,000 advance construction).	224,100,000	551,000
Reimburse an additional 10 percent of the costs of general navigation features allocated to commercial navigation within a period of 30 years following completion of construction, as partially reduced by a credit allowed for the value of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal area provided for commercial navigation.	21,000,000	
Total Non-Federal Costs	$ 300,000,000	$ 551,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction and reimburse its share of construction costs within a period of 30 years following completion of construction.

STATUS OF LOCAL COOPERATION: The Los Angeles Harbor Department has indicated its support for the recommended plan and its willingness and intent to execute the Project Cooperation Agreement (PCA). An agreement was executed in March 1995 to define the credit to be allowed for advance construction of Increments 2 and 4 performed by the local sponsor, per Section 4(d) of the Water Resources Development Act of 1988 and Section 102 of the Water Resources Development Act of 1990. A Project Cooperation Agreement is scheduled to be executed in June 1996.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of $100,700,000 is the same as the latest estimate presented to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Impact Statement was filed on 21 January 1994.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1990 but were not allocated until FY 1993 upon completion of the feasibility phase with the District Engineer Notice 30 September 1992. Funds to initiate construction were appropriated in FY 1996.

The Port of Los Angeles initiated construction of Stage 1 in September 1994. The Corps is preparing plans and specifications during the Port's construction. Construction of Stage 2 will commence after completion of the Port's construction, estimated to be in February 1998.

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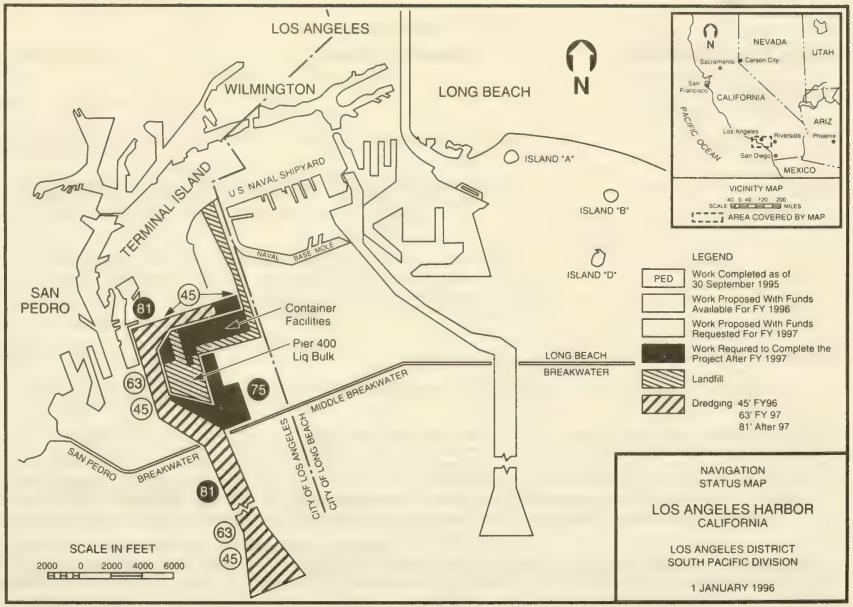

LOS ANGELES
WILMINGTON
LONG BEACH
N
TERMINAL ISLAND
U.S. NAVAL SHIPYARD
NAVAL BASE MOLE
SAN PEDRO
Container Facilities
Pier 400 Liq Bulk
81
45
63
75
MIDDLE BREAKWATER
SAN PEDRO BREAKWATER
CITY OF LOS ANGELES
CITY OF LONG BEACH
ISLAND "A"
ISLAND "B"
ISLAND "D"
LONG BEACH BREAKWATER
SCALE IN FEET
2000 0 2000 4000 6000
NEVADA
UTAH
Sacramento
Carson City
San Francisco
CALIFORNIA
PACIFIC OCEAN
ARIZ
Los Angeles
Riverside
Phoenix
San Diego
MEXICO
VICINITY MAP
40 0 40 120 200
SCALE MILES
AREA COVERED BY MAP
LEGEND
PED
Work Completed as of 30 September 1995
Work Proposed With Funds Available For FY 1996
Work Proposed With Funds Requested For FY 1997
Work Required to Complete the Project After FY 1997
Landfill
Dredging 45' FY96
63' FY 97
81' After 97
NAVIGATION STATUS MAP
LOS ANGELES HARBOR
CALIFORNIA
LOS ANGELES DISTRICT
SOUTH PACIFIC DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Oakland Harbor, California (Continuing)

LOCATION: Oakland Harbor is located in the City of Oakland, California, on the eastern shore of central San Francisco Bay immediately south of the San Francisco-Oakland Bay Bridge.

DESCRIPTION: The authorized project consists of deepening the 4 mile Inner Harbor and the 3.4 mile Outer Harbor channels to 42 feet and widening the Entrance Channel to 1,000 feet; relocation of the Outer Harbor turning basin 3,000 feet westward, and widening the turning basin to 1,800 feet; and constructing a 1,200-foot turning basin in the Inner Harbor, 42 feet deep, at mile 3.7. As an interim measure prior to deepening the entire project to 42 feet, a limited portion of the Inner Harbor, from the entrance to the Howard terminal, was deepened to 38 feet.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable because project construction is substantially complete.

TOTAL BENEFIT - COST RATIO: 13.8 to 1 at 8 5/8 percent

INITIAL BENEFIT - COST RATIO: 3.0 to 1 at 8 5/8 percent (FY 1987)

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation (General Design Memorandum) dated June 1994 at December 1993 price levels.

SUMMARIZED FINANCIAL DATA		
Estimated Appropriation Requirement (COE)		$ 56,025,000
38-foot portion	$ 2,158,000	
42-foot portion	$53,867,000	
Estimated Appropriation Requirement (USCG)		125,000
Estimated Total Appropriation Requirement		56,150,000
Future Non-Federal Reimbursement		7,485,000
38-foot portion	$ 0	
42-foot portion	$ 7,485,000	
Estimated Federal Cost (Ultimate)		48,665,000

STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Deepen 38 foot portion	100	December 1992
Entire Project	97	April 1997

PHYSICAL DATA

Channels:	Deepening the 4 mile Inner Harbor and 3.4 mile Outer Harbor channel to 42 ft. Widen the Entrance channel to 1,000 ft.
Turning Basins	Widen and relocate Outer Harbor and deepen to 42 ft. Construct 1,200 ft turning basin in Inner Harbor 42 ft. Deep, at mile 3.7

Division: South Pacific District: San Francisco Oakland Harbor, California

SUMMARIZED FINANCIAL DATA (Continued)

				ACCUM PCT. OF EST. FED. COST
Estimated Non-Federal Cost			38,185,000	
Cash Contribution		$30,700,000		
38-foot portion	$ 1,162,000			
42-foot portion	$ 29,538,000			
Other Costs		0		
Reimbursements		7,485,000		
38-foot portion	$ 0			
42-foot portion	$ 7,485,000			
Total Estimated Project Cost			86,850,000	
38-foot portion	$ 3,320,000			
42-foot portion	$ 83,530,000			
Allocations to 30 september 1995			38,080,000	
Conference Allowance for FY 1996			14,000,000	
Allocation for FY 1996			13,639,000 1/	
Allocation through FY 1996			51,719,000	93
Allocation Requested for FY 1997			4,306,000	100
Programmed Balance to Complete after FY 1997			0	
Unprogrammed Balance to Complete after FY 1997			0	

1/ Reflects $1,161,000 reduction assigned as savings and slippage, $800,000 reprogrammed to the project.

JUSTIFICATION: The Port of Oakland services about 85 percent of all general cargo moving through the Golden Gate, 95 percent of which is containerized. The existing Federal navigation channel serving Oakland Harbor is inadequate for efficient shipping operations and vessel safety as a result of increased vessel traffic and larger containerships. Cargo movement by larger vessels is hampered by the need to load to less than full capacity and to wait for high tides to avoid grounding hazards. Annual tonnage handled by this project amounted to approximately 10 million tons in 1990. The Port terminals are considered to be state-of-the art. The plan of improvement will provide for further development of the harbors to accommodate the new generation of containerships, improve safety of vessel traffic and provide maximum efficiency of port operations. The majority of ships presently using the port have design drafts greater than 35 feet. Limited deepening of the Inner Harbor portion of the project to 38 feet was completed in December 1992. Vessels may now depart the Port with some additional cargo, but must still arrive light-loaded. The remainder of the project is needed to allow safe and efficient utilization of the port. Average annual benefits, all commercial navigation, are estimated at $144,911,000 based on December 1993 prices. The 38 foot deepening completed in December 1992 resulted in realization of an estimated $1,026,000 in annual benefits.

FISCAL YEAR 1997: The requested amount will be appplied as follows:

Complete Harbor Deepening to 42 feet	$ 4,174,000
Planning, Engineering, and Design	67,000
Construction Management	65,000
Total	$ 4,306,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursement	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Pay 25 percent of the costs allocated to navigation during construction.	$30,700,000	$800,000
38-foot portion $ 1,162,000		
42-foot portion $29,538,000		
Pay an additional 10 percent plus interest of the costs allocated to the general navigation facilities within a period of 30 years following completion of construction.	7,485,000	N/A
38-foot portion $ 0		
42-foot portion $ 7,485,000		
Total Non-Federal Costs	$38,185,000	$800,000

STATUS OF LOCAL COOPERATION: The local sponsor, the Port of Oakland, has contributed their share of PED and construction for the 38 feet deepening in the Inner Harbor. The Project Cooperation Agreement (PCA) for the remaining 42-foot portion of the project was signed in December 1994. The Port of Oakland has contributed their share of PED for the total project and for construction in FY 95 and FY 96.

COMPARISON OF FEDERAL COST ESTIMATES: The current cost estimate of $56,025,000 is a decrease of $33,210,000 from the latest estimate ($89,235,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	-$ 33,210,000
Total	-$ 33,210,000

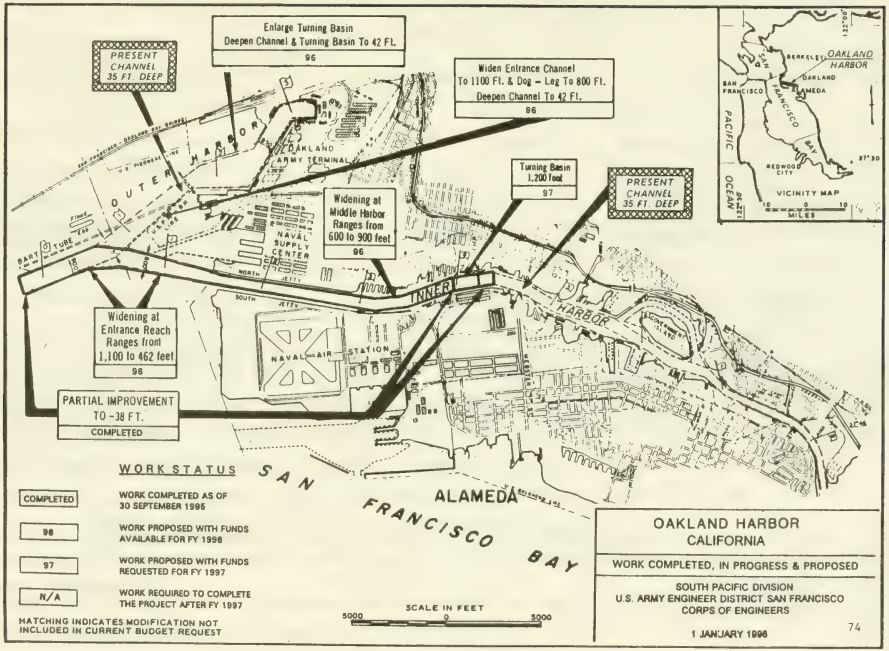
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: Supplement one to the Environmental Impact Statement (EIS) was filed in March 1988. The second Supplemental EIS was filed in July 1994.

OTHER INFORMATION: Funds were appropriated to initiate preconstruction planning in FY 1984 and to initiate construction in FY 1987. Construction of the total project could not start because of objections by Federal and state agencies and local environmental groups to the existing disposal site and because of the non-availability of a new dredged material disposal site. Studies have been completed for new disposal sites. The supplemental EIS addressed new upland, wetland creation, in-bay and ocean disposal sites. The scheduled completion date of April 1997 for programmed work is the same as the latest completion date presented to Congress (FY 1995).

The current cost estimate for the authorized project is based on disposal of dredged material at a section 102 ocean disposal site, approximately 50 miles west of the Golden Gate Bridge, at a required upland disposal site, and at the wetland creation site at Sonoma Baylands. Based on the favorable bids received for the contract awarded 16 Dec
ember 1994 to deepen the project to 42 feet, the estimated cost to complete the project was reduced.

Designation of a general purpose Section 102 ocean disposal site and criteria for in-bay and upland dredged sediment disposal are being pursued as part of the San Francisco Bay Long Term Management Strategy (LTMS). The LTMS study program includes participation by the Corps of Engineers, the Environmental Protection Agency (EPA) Region IX, the State of California, the US Navy and other navigation interests. The entire study effort is being integrated by the Corps of Engineers. The Section 102 ocean site was designated in August 1994. The Oakland Harbor project is sensitive to dredged material disposal requirements developed by the LTMS, including incorporation into the EIS and General Design Memorandum.

The current project is based on placement of some of the dredged material at Sonoma Baylands, a Federally authorized wetlands creation project. The incremental cost of using Sonoma Baylands is cost-shared by the State of California Coastal Conservancy. Project construction is in progress. 1,800,000 cubic yards of dredging material were placed at Sonoma Baylands wetland restoration site. The remainder of the dredge material is being placed at the Ocean site and a confined upland site.


Enlarge Turning Basin
Deepen Channel & Turning Basin To 42 Ft.
96
PRESENT CHANNEL 35 FT. DEEP
Widen Entrance Channel
To 1100 Ft. & Dog – Leg To 800 Ft.
Deepen Channel To 42 Ft.
96
Turning Basin 1,200 feet
97
PRESENT CHANNEL 35 FT. DEEP
Widening at Middle Harbor Ranges from 600 to 900 feet
96
Widening at Entrance Reach Ranges from 1,100 to 462 feet
96
PARTIAL IMPROVEMENT TO -38 FT.
COMPLETED
OUTER HARBOR
INNER HARBOR
OAKLAND ARMY TERMINAL
NAVAL SUPPLY CENTER
NAVAL AIR STATION
BART TUBE
NORTH JETTY
SOUTH JETTY
SAN FRANCISCO BAY
ALAMEDA
OAKLAND HARBOR
BERKELEY
OAKLAND
SAN FRANCISCO
ALAMEDA
PACIFIC OCEAN
REDWOOD CITY
VICINITY MAP
MILES
WORK STATUS
COMPLETED — WORK COMPLETED AS OF 30 SEPTEMBER 1995
98 — WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1998
97 — WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997
N/A — WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997
HATCHING INDICATES MODIFICATION NOT INCLUDED IN CURRENT BUDGET REQUEST
SCALE IN FEET
5000 0 5000
OAKLAND HARBOR
CALIFORNIA
WORK COMPLETED, IN PROGRESS & PROPOSED
SOUTH PACIFIC DIVISION
U.S. ARMY ENGINEER DISTRICT SAN FRANCISCO
CORPS OF ENGINEERS
1 JANUARY 1996
74

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Richmond Harbor, California (Continuing)

LOCATION: The project is located in the northeastern section of San Francisco Bay, in the City of Richmond, Contra Costa County, California.

DESCRIPTION: Deepen existing 4.5 miles of channel between the Richmond Long Wharf and Santa Fe Channel from 35 feet to 38 feet, and construct a turning basin 1,200 feet in diameter to a depth of 38 feet. The project was authorized to a depth of 41 feet; however, that depth is not currently required. (See OTHER INFORMATION.)

AUTHORIZATION: Supplemental Appropriations Act, 1985 and the Water Resources Development Act of 1986

REMAINING BENEFIT-REMAINING COST RATIO: 3.6 to 1 at 7 3/4 percent

TOTAL BENEFIT-COST RATIO: 2.7 to 1 at 7 3/4 percent

INITIAL BENEFIT-COST RATIO: 3.0 to 1 at 8 7/8 percent (FY 1988)

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation (Draft General Design Memorandum) dated September 1987, as modified by the FY 1988 second new start submission, at October 1987 price levels.

SUMMARIZED FINANCIAL DATA		STATUS: (1 Jan 96)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Appropriation Requirement (COE)	$24,350,000	Entire Project	Not Started	Being determined
Estimated Appropriation Requirement (USCG)	125,000		PHYSICAL DATA	
Estimated Total Appropriation Requirement	24,475,000	Channel:	Deepen 4.5 miles of existing 35 foot channel to 38 feet.	
Future Non-Federal Reimbursement	3,230,000			
Estimated Federal Cost (Ultimate)	21,245,000	Turning Basin:	Provide turning basin at Point Potrero, 38 feet deep and 1,2 feet in diameter.	

Division: South Pacific District: San Francisco Richmond Harbor, California

				ACCUM. PCT. OF EST. FED. COST.
Estimated Non-Federal Cost			$11,805,000	
Cash Contribution	$7,925,000			
Other Costs	650,000			
Reimbursements	3,230,000			
Commercial Navigation		3,230,000		
Total Estimated Project Cost			$33,050,000	
Allocations to 30 September 1995			$ 8,453,332	
Conference Allowance for FY 1996			3,296,000	
Allocation for FY 1996			663,400 1/	
Allocations through FY 1996			9,116,732	37
Allocation Requested for FY 1997			3,000,000	50
Programmed Balance to Complete after FY 1997			12,233,268	
Unprogrammed Balance to Complete after FY 1997			0	

1/ Reflects $273,000 reduction assigned as savings and slippage and $2,359,600 reprogrammed from the project.

JUSTIFICATION: Bulk cargo at the Port of Richmond increased more than 93 percent in ten years, from 2,000,000 tons in 1985 to 3,860,000 tons in 1995. Commodities shipped consist of scrap metal, steel products, metal ores, gypsum products, chemicals, vegetable oils and petrochemicals. The proposed channel improvements will permit more efficient vessel operations and improved navigation safety. The existing 35-foot channel contains sharp turns which are increasingly difficult for large vessels to navigate against strong winds, waves and currents, especially at night and under foggy conditions. As cargo tonnage grows and larger vessels are introduced, the inadequacy of the channel and the lack of a turning basin will increase light-loading and tidal delays as well as the hazard of grounding. The project is designed to facilitate continued growth of the port as a major center of bulk shipments by deepening the present 35-foot channel to 38 feet MLLW and provide a new turning basin for bulk carriers. Average annual benefits, all commercial navigation, are estimated to be $4,700,000 at 1 October 1987 price levels, from transportation cost savings gained by fuller loading, the use of larger vessels, and reduction in tidal delays.

FISCAL YEAR 1997: The requested amount of $3,000,000 will be applied as follows:

Planning, Engineering and Design	$ 90,000
Continue Construction	2,730,000
Construction Management	180,000
TOTAL	$ 3,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursement	Annual Operation, Maintenance, Repair Rehabilitation and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 650,000	$260,000
Pay 10 percent of costs to 20 feet below mean lower low water and 25 percent of costs between 20 and 45 feet below mean lower low water.	7,925,000	
Reimburse an additional 10 percent of the costs allocated to general navigation facilities within a period of 30 years following completion of construction.	3,230,000	
Total Non-Federal Costs	$11,805,000	$260,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction (and reimburse its additional 10% share of construction costs over 30 years).

STATUS OF LOCAL COOPERATION: By letter dated 19 March 1990, the City of Richmond reaffirmed its intent to sign a Project Cooperation Agreement in compliance with requirements of the Water Resources Development Act of 1986 for the project. The agreement is scheduled to be executed in July 1996.

In a letter dated 31 March 1989, the non-Federal sponsor indicated that it is financially capable and willing to contribute the non-Federal share. Project support was strongly affirmed in a letter dated 19 March 1990 to ASA(CW). The sponsor reiterated this position at a 8 November 1995 Public Meeting on the Project Draft Environmental Impact Statement. Our analysis of the non-federal sponsor's financial capability to participate in the project is affirmed by the sponsor's establishment of a Harbor Navigation Improvement District which would enable the sponsor to finance the project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $24,350,000 is a decrease of $1,400,000 from the latest estimate ($25,750,000) presented to Congress (FY 1996). This change includes the following item:

Item	Amount
Design Changes	- $ 1,400,000

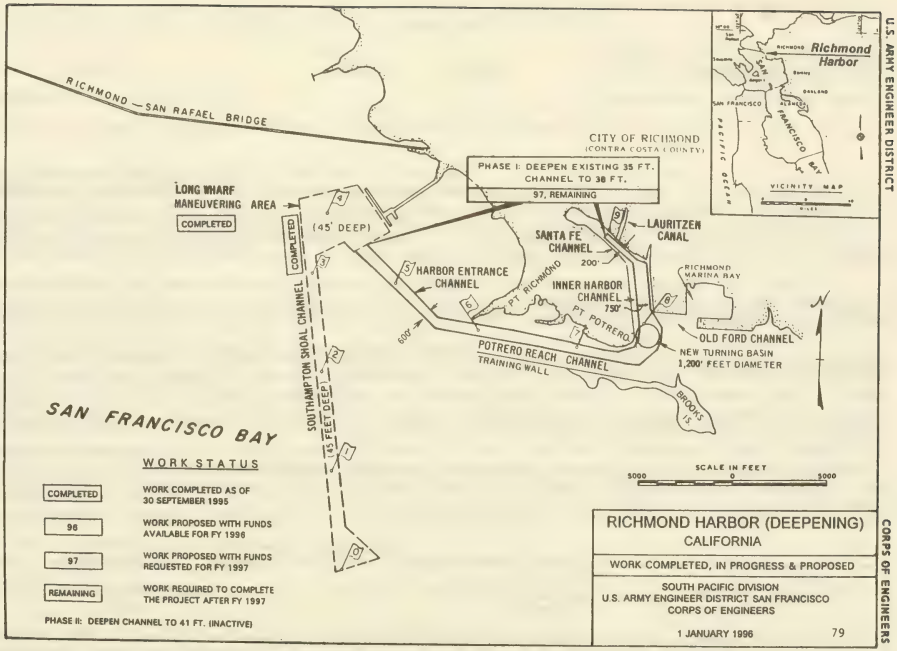
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The original Final Environmental Impact Statement (EIS) was filed on 21 May 1982. The Final Supplemental EIS was completed in February 1996.

OTHER INFORMATION: Funds to initiate Preconstruction Engineering and Design were appropriated in Fiscal Year 1985. Funds to initiate construction were initially provided in the Fiscal Year 1985 Supplemental Appropriations Act. However, design was not sufficiently advanced to permit execution of a Local Cooperation Agreement by 30 June 1986 as required by the Act and construction funding lapsed. Construction funds were again appropriated in Fiscal Year 1988 to continue preparation of the General Design Memorandum.

The Lauritzen Canal is a tributary of the Santa Fe Channel, which is part of the deepening project. A DDT chemical packaging facility which was in operation about 30 years ago contaminated the Lauritzen Canal. The Canal is now an Environmental Protection Agency (EPA) Superfund site. The scheduled project completion date of November 1997 is a change from the latest completion date of February 1997 presented to Congress. This change is due to the evaluation of a new potential upland dredged material disposal site proposed by the project sponsor, and consistent with the San Francisco Bay Long Term Management Strategy (LTMS) for dredged material disposal.

Staged construction was studied at the request of the local sponsor. The second stage of the project, deepening from 38 feet to 41 feet, was reclassified to the inactive category on 8 February 1988 because container traffic did not materialize as previously forecast and those associated costs have been deleted from the project cost estimate.

EPA's designation of a general purpose Section 102 ocean disposal site occurred in August 1994 and criteria for in-bay and upland dredged sediment disposal are being pursued as part of the San Francisco Bay Long Term Management Strategy (LTMS). The LTMS study program includes participation by the Corps of Engineers, EPA Region IX, the State of California, the US Navy and other navigation interests. The entire study effort is being integrated by the Corps of Engineers. The Richmond Harbor project schedule is sensitive to dredged material disposal requirements developed by the LTMS, including incorporation into the EIS and General Design Memorandum.



RICHMOND HARBOR (DEEPENING)
CALIFORNIA

WORK COMPLETED, IN PROGRESS & PROPOSED

SOUTH PACIFIC DIVISION
U.S. ARMY ENGINEER DISTRICT SAN FRANCISCO
CORPS OF ENGINEERS

1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: San Francisco Bay to Stockton, California (John F. Baldwin and Stockton Ship Channels) (Continuing)

LOCATION: The project is located on navigation channels that extend from the San Francisco Bay entrance to the Port of Stockton through San Francisco, Marin, Contra Costa, Solano, Sacramento, and San Joaquin Counties.

DESCRIPTION: The project consists of deepening the San Francisco Bar Channel to 55 feet, the John F. Baldwin Ship Channel through Pinole Shoal and Carquinez Straits into Suisun Bay to 45 feet and the remaining Stockton Ship Channel to 35 feet; bank protection; maintenance of bank protection; and wetland wildlife habitat enhancement. The Bulls Head Channel portion of the Suisun Bay Channel is unprogrammed.

AUTHORIZATION: 1965 River and Harbor Act

REMAINING BENEFIT-REMAINING COST RATIO: Stockton Ship Channel, Avon to Stockton - essentially completed;
John F. Baldwin Ship Channel to Martinez - 4.7 to 1 at 3 1/4 percent.

TOTAL BENEFIT-COST RATIO: Stockton Ship Channel, Avon to Stockton - essentially completed.
John F. Baldwin Ship Channel to Martinez - 4.2 to 1 at 3 1/4 percent.

INITIAL BENEFIT-COST RATIO: 2.4 to 1 at 3 1/4 percent (Total Project) (FY 1970)

BASIS OF BENEFIT-COST RATIO: Benefits for the John F. Baldwin Ship Channel to Martinez portion including the West Richmond, Pinole Shoal and Carquinez Straits Channels are based on the latest evaluation of that portion dated May 1988 at March 1988 price levels. This also includes Suisun Channel price leveled through 1 October 1995.

SUMMARIZED FINANCIAL DATA				STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost (COE)			$172,250,000			
Programmed Construction	$ 65,917,000			Entire Project	38	BEING DETERMINED
Unprogrammed Construction	$106,333,000					
Estimated Federal Cost (USCG)			780,000			
Total Estimated Federal Cost			173,030,000			
Estimated Non Federal Cost			29,270,000			
Cash Contributions		20,000				
Other Costs		29,250,000				
Total Estimated Project Cost			$202,300,000			

Division: South Pacific District: San Francisco San Francisco Bay to Stockton, California (John F. Baldwin and Stockton Ship Channels)

SUMMARIZED FINANCIAL DATA (Continued)

		ACCM. PCT. OF EST. FED. COST	
Allocations to 30 September 1995	$64,467,000		
Conference Allowance for FY 1996	800,000		
Allocation for FY 1996	950,000 1/		1/Reflects $66,000 reduction assigned as savings & slippage and $216,000 reprogrammed to the project.
Allocations through FY 1996	65,417,000	38%	
Allocation Requested for FY 1997	500,000	38%	
Programmed Balance to Complete after FY 1997	0		
Unprogrammed Balance to complete after FY 1997	106,333		

PHYSICAL DATA

Channels: Deepen San Francisco Bar Channel to 55 feet. Deepen main internal bay channels upstream to Avon to 45 feet, and deepen the existing alignment of the Suisun Bay and Stockton Ship Channels from Avon to Stockton to 35 feet.

Revetment: Place rock revetment on levees bordering the ship channel.

Turning Basin: Provide access and turning basin facilities near the refinery piers at Martinez, Avon, and Oleum.

Maneuvering Area: Enlarge and deepen maneuvering areas adjacent to major petroleum cargo terminals to 45 feet.

JUSTIFICATION: Inadequate channel depths and widths, and circuitous navigation channels produce serious detriments to deep-draft commercial and military vessel traffic using the navigation channels that extend from the San Francisco Bay entrance upstream to the Port of Stockton. Many existing vessels can use the navigation channels only by partial loading, partial off loading (lightening of crude oil into smaller vessels while anchored in the Central Bay), and/or awaiting favorable tides. All are costly restrictions. In addition, in-bay transfer of crude oil has environmental risks associated with it. Current trends in the shipping industry toward larger, deep-draft vessels will aggravate these detriments. The project will provide a deeper channel to accommodate the deeper draft vessels and reduce the chance of grounding. Selective dredged material will be used to enhance wildlife conditions. Average annual benefits for the Stockton Ship Channel from Avon to Stockton portion are $8,765,000, all navigation related, based on 1980 price levels; for the John F. Baldwin Ship Channel to Martinez portion benefits are $21,690,000, all navigation related, based on 1988 price levels.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue Planning Engineering and Design	$ 500,000
Total	$ 500,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the River and Harbor Act of 1965, the non-Federal sponsor must comply with the requirement listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Costs
Provide lands, easements, rights of ways, and dredged material disposal areas.	$21,270,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges) and other facilities, where necessary in the construction of the project.	800,000	$452,000
Berthing	7,180,000	
Cash Contribution (the cash contribution is based on a contribution of four cents per cubic yard of dredged material to be used as fill in areas not to be developed for public use.)	20,000	
Total Non-Federal Costs	$29,270,000	$452,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

Division: South Pacific District: San Francisco San Francisco Bay to Stockton, California (John F. Baldwin and Stockton Ship Channels)

STATUS OF LOCAL COOPERATION: The Board of Supervisors of Contra Costa County, by resolution adopted 16 October 1979, expressed intention to furnish the required assurances of local cooperation for the John F. Baldwin portion of the 45' project based on the incremental approach to project construction. Formal assurances for deepening to 35' and otherwise improving the Stockton Deep Water Ship Channel from Pittsburg to Stockton were furnished by the Stockton Port District by letter dated 9 April 1970. The Stockton Port District provided formal assurances for navigation, and fish and wildlife mitigation and enhancement for the Avon to Stockton portion of the 35' project on 13 April 1982. For that portion of the 35' project, (Avon to Stockton) within its current boundaries, Contra Costa County will assume sponsorship by November 1996. In accordance with Section 221 of the Flood Control Act of 1970 (Public Law 91-611), a written agreement satisfying all the requirements of local cooperation for Southampton Shoal Channel and Richmond Long Wharf maneuvering area was obtained from the Contra Costa County Board of Supervisors and was signed by the District Engineer 31 July 1984. A written agreement for the West Richmond, Pinole Shoal, Carquinez Strait, and Suisun Bay Channels will be executed with the Contra Costa County Board of Supervisors before any 45' construction is accomplished in those areas. The Board passed a resolution of continued support for this phase of the project on 3 May 1988. A Memorandum of Agreement between the Department of the Army, San Francisco District and Contra Costa County to sample the berthing areas of the project was executed on 12 September 1989. The Board of Supervisors of Contra Costa County reaffirmed their support of the project in a letter dated 10 July 1990. Contra Costa County has instituted a monthly users meeting to promote coordination between the county, potential beneficiaries and the Corps of Engineers. The local sponsor conducted necessary testing of berth areas in January 1994. Federal Channel sediment testing for West Richmond, Pinole Shoal, Carquinez Strait, and Suisun Bay Channel was completed March 1994.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $172,250,000 is the same as the latest estimate presented to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement (EIS) for the San Francisco Bar Channel was filed on 14 April 1971. The Final EIS for the Stockton Ship Channel, Avon to Stockton, was filed on 26 July 1981. The Final EIS for the Richmond Long Wharf and Southampton Shoal Channels was filed on 15 July 1984. The final EIS for the remaining work is scheduled for February 1997.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1967 and for construction in FY 1970. Special engineering studies to identify and quantify the changes in the salinity, if any, of the estuary associated with the channel deepening were conducted. These studies include model tests and the development of a data storage and retrieval system to analyze both prototype and model data. The studies addressed the deepening from 36 to 45 feet of the remaining reach of the existing John F. Baldwin Channel. Construction of this reach has been delayed pending completion of the studies and intragency consensus on appropriate mitigation measures, if required. These studies have been completed, and preparation of the project EIS has begun.

OTHER INFORMATION (CONTINUED)

EPA'S designation of a general purpose section 102 ocean disposal occurred in August 1994 and criteria for in-bay and upland dredged sediment disposal are being pursued as part of the San Francisco bay Long Term Management Strategy (LTMS). The LTMS study program includes participation by the Corps of Engineers, EPA Region IX, the State of California, the US Navy and other navigation interests. The entire study effort is being integrated by the Corps of Engineers. The San Francisco Bay to Stockton Phase III project schedule is sensitive to dredged material disposal requirements developed by the LTMS, including incorporation into the EIS and General Design Memorandum.

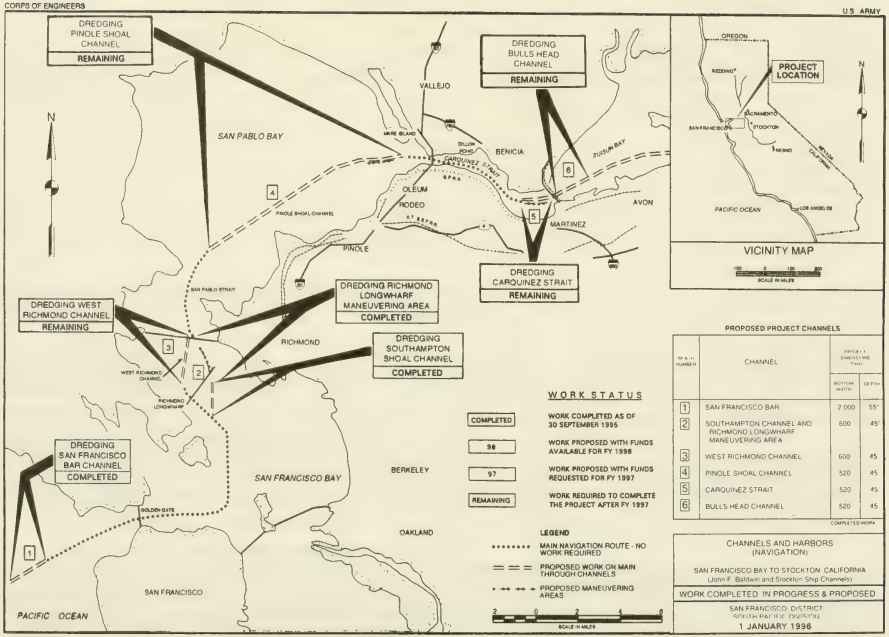
The authorized 45-foot deep Suisun Bay Channel portion of the project was reclassified to the active category by the Chief of Engineers on 24 August 1993, following a favorable preliminary reevaluation of the economics for part of that reach based on a new public terminal which began operation in 1991. The study was funded by Contra Costa County, the project sponsor. Only the Bulls Head Channel portion of the Suisun Bay Channel reach will be incorporated into design and construction of the remaining John F. Baldwin Ship Channel 45-foot project, and the remainder of the Suisun Bay Channel deepening will be deleted upon completion of other portions of the project.

At the sponsor's request, an alternative to the long navigation channel will be evaluated in a General Reevaluation Report. This new alternative involves a channel to a pipeline terminal to be built just north of the Richmond-San Rafael Bridge. The terminal alternative may resolve or avoid the major issues of salinity intrusion and dredged material disposal which exist with the longer navigation channel alternative. Studies being conducted by the sponsor and Corps will determine the viability of the new proposal.

The scheduled completion date of February 1997 for the final EIS slipped from the completion date of July 1996 last presented to Congress. The change is due to additional time required to resolve potential salinity intrusion issues, and incorporate the new project alternative requested by the sponsor.

CORPS OF ENGINEERS

U.S. ARMY



PROPOSED PROJECT CHANNELS

MAP NUMBER	CHANNEL	PROJECT DIMENSIONS Feet: BOTTOM WIDTH	PROJECT DIMENSIONS Feet: DEPTH
1	SAN FRANCISCO BAR	2 000	55*
2	SOUTHAMPTON CHANNEL AND RICHMOND LONGWHARF MANEUVERING AREA	600	45*
3	WEST RICHMOND CHANNEL	600	45
4	PINOLE SHOAL CHANNEL	520	45
5	CARQUINEZ STRAIT	520	45
6	BULLS HEAD CHANNEL	520	45

*COMPLETED WORK

CHANNELS AND HARBORS (NAVIGATION)

SAN FRANCISCO BAY TO STOCKTON CALIFORNIA
(John F. Baldwin and Stockton Ship Channels)

WORK COMPLETED IN PROGRESS & PROPOSED

SAN FRANCISCO DISTRICT
SOUTH PACIFIC DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Beach Erosion Control

PROJECT: Surfside-Sunset and Newport Beach (Orange County), California (Continuing)

LOCATION: The project is located on the coast of southern California south of Long Beach, in Orange County, and includes 17 miles of coastline between the mouth of the San Gabriel River and the entrance to Newport Bay.

DESCRIPTION: The authorized plan of improvement provides for construction of eight groins, approximately 17,300,000 cubic yards of sand beachfill, subsequent periodic beach nourishment for protection of the shore from Surfside Beach to Newport Beach, and unprogrammed construction of a single 2,600-foot long detached offshore rubblemound breakwater near the mouth of the Santa Ana River, California. (SEE OTHER INFORMATION)

AUTHORIZATION: River and Harbor Act of 1962.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable because initial construction has been completed.

TOTAL BENEFIT-COST RATIO: 3.1 at 3-1/8 percent.

INITIAL BENEFIT - COST RATIO: 3.1 to 1 at 3-1/8 percent (FY 1966).

BASIS OF BENEFIT-COST RATIO: Based on the project functioning independently.

SUMMARIZED FINANCIAL DATA		ACCUM. PCT.OF EST. FED COST	STATUS (1 Jan 96)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$43,200,000	Entire Project	62	Indefinite 1/
Programmed Construction	$31,024,000				
Unprogrammed Construction	12,176,000				
Estimated Non-Federal Cost		21,300,000			
Programmed Construction	15,220,000				
Cash Contributions	$15,220,000				
Other Costs	0				

1/ Stage 10 is scheduled to complete in March 1997; remaining work (Stage 6 and future beach replenishment stages) pending a decision to construct these features.

			ACCUM. PCT. OF EST. FED COST
Estimated Non-Federal Cost			
Unprogrammed Construction		6,080,000	
Cash Contributions	6,080,000		
Other Costs	0		
Total Estimated Programmed Construction Cost		46,244,000	
Total Estimated Unprogrammed Construction Cost		18,256,000	
Total Estimated Project Cost		$64,500,000	
Allocations to 30 September 1995		$16,368,000	
Conference Allowance for FY 1996		100,000	
Allocation for FY 1996		92,000 1/	
Allocations Through FY 1996		16,460,000	38
Allocation Requested for FY 1997		5,604,000	51
Programmed Balance to Complete After FY 1997		0	
		8,960,000	
Unprogrammed Balance to Complete After FY 1997		$12,176,000	

PHYSICAL DATA

Groins: 8 varying from 470 to 600 feet in length
Breakwater: detached, rubblemound, about 2,600 feet long

Beach Replenishment: 17,300,000 cubic yards

1/ Reflects $8,000 reduction assigned as savings and slippage.

JUSTIFICATION: The proposed beach replenishment will arrest continuing erosion of the shoreline in the project area which threatens beach houses, roadways and streets, parking areas, and utilities. Surveys show a net downcoast movement of about 300,000 cubic yards of beach sand on an average annual basis. To replace this loss, a feeder beach was established at the Surfside-Sunset Beach area for placement of 1.8 million cubic yards of imported sand every 5 years. The last beach replenishment at Surfside-Sunset Beach (Stage 9) was completed in November 1990. Continuous erosion has receded the beach to about 180 feet in the Surfside Colony since the Stage 9 beach replenishment was completed. Additionally, the increased beach size will result in greater beach usage and recreational benefits. Estimated average annual benefits are as follows:

Annual Benefits	Amount
Beach Erosion Control	$11,494,000
Recreation	1,006,000
Total	$12,500,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Complete Beach Replenishment (Stage 10)	$5,080,000
Engineering and Design	71,000
Construction Management	453,000
Total	$5,604,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the River and Harbor Act of 1962, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Pay 33 percent of the first costs allocated to breakwater, groins, and beach replenishment and bear 33 percent of the maintenance cost during the useful life of the project.	$16,860,000	$200,000 1/

1/ Exclusive of periodic beach replenishment.

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction. In addition, local interests have expended $490,000 for supplemental work not required by authorizing legislation but located in the immediate project area.

STATUS OF LOCAL COOPERATION: The State of California and Orange County provided the required assurances of local cooperation by resolutions dated 4 September 1963 and 18 September 1963, respectively, for construction of the project. In addition, local interests furnished contributed and advance funds for design and construction of the completed Stages 1 through 5, 7, 8, and 9 of the project. By letter dated 27 December 1994, Orange County, one of five local sponsors, advised Los Angeles District of their tenuous financial position to meet their share of required local funds. Orange County filed Chapter 9 bankruptcy in December 1994. As a result, award of the contract was delayed on year.

The state of California advised by letter dated 11 August 1995 that necessary funds were procured to satisfy Stage 10 cost-sharing requirements. The funding agreement will be signed before 30 June 1996 to preclude expiration of state funds. Construction will be initiated September 1996.

The current non-Federal cost estimate of $21,300,000, all cash contributions, is an increase of $4,440,000 the latest estimate presented to Congress in the Fiscal Year 1996 Budget Justification Data furnished to the Appropriation Committees. Based on letters dated March 1995 from both State of California and Orange County, our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $43,200,000 is an increase of $8,960,000 over the latest estimate ($34,240,000) presented to Congress (FY 1996). This changes includes the following items.

Item	Amount
Price Level on Construction feature	$2,183,000
Design change Stage 10	- 284,000
Additional Functions added under General Authority (Stage 11)	7,061,000
Total	$8,960,000

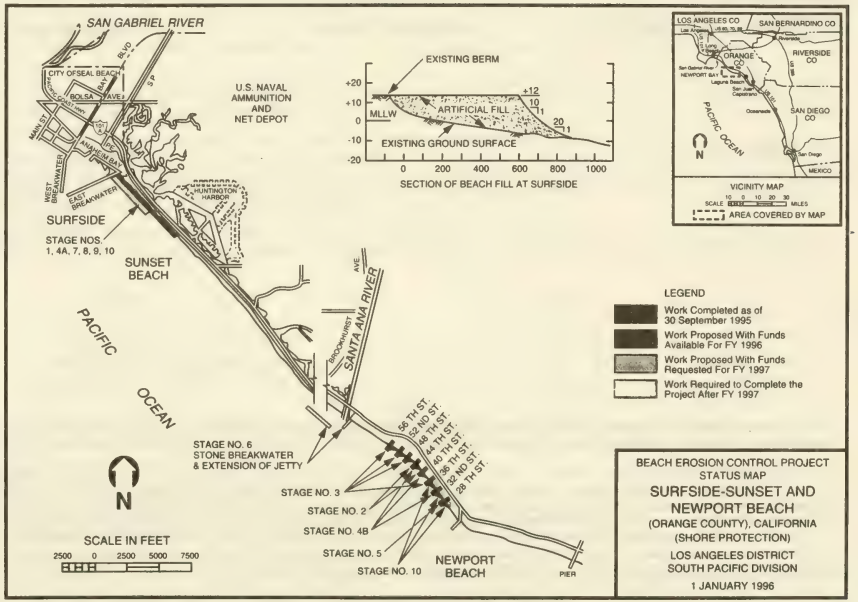
OTHER INFORMATION: Funds to initiate preconstruction planning and construction were advanced and contributed by local interests in FY 1964. Construction funds were appropriated in FY 1966 for initial reimbursement to local interests.

Construction was accomplished as follows: Stage 1, beach replenishment along Surfside-Sunset Beach in 1964; Stage 2, two groins and beach replenishment on Newport Beach in 1968; Stage 3, four groins on Newport Beach in 1969; Stage 4A, beach replenishment along Surfside-Sunset Beach in 1971; Stages 4B and 5, two groins, rehabilitation of two groins, and beach replenishment on Newport Beach in 1973; and Stages 7, 8, and 9, beach replenishment along Surfside-Sunset Beach in June 1979, April 1984, and November 1990, respectively. To date, eight groins have been built.

The city of Huntington Beach and the State of California feel that the beach material placed at Surfside-Sunset is not going downcoast through the littoral process in sufficient quantities to nourish West Newport Beach as originally estimated. They have requested that nourishment at West Newport Beach be included with Stage 10.

Construction of Stage 6, a 2,600-foot detached breakwater, has been indefinitely postponed. The beach immediately downcoast of Anaheim Bay (Surfside Colony) suffers the worst erosion in the project area. Local interests desire structural measures to protect the area. A study to conduct a preliminary assessment of cost-effective structural alternatives to reduce long-term beach nourishment costs was initiated in November 1988. The draft study report was completed in May 1992; the final report is scheduled for completion in May 1996. This is a 13-month slip from the April 1995 schedule reported to Congress (FY 1996) due to refocusing efforts to include Newport Beach in Stage 10 replenishment work.

The scheduled completion date of March 1997 for Stage 10 is a slippage from the latest completion date of March 1996 presented to Congress (FY 95). This change is due to financial difficulties of a local sponsor, Orange County.


SAN GABRIEL RIVER
CITY OF SEAL BEACH
BOLSA CHICA
MAIN ST.
BOLSA AVE.
S.P.R.R.
MAIN ST.
BEACH BLVD.
WEST BREAKWATER
EAST BREAKWATER
SURFSIDE
STAGE NOS. 1, 4A, 7, 8, 9, 10
U.S. NAVAL AMMUNITION AND NET DEPOT
HUNTINGTON HARBOR
SUNSET BEACH
PACIFIC OCEAN
BEACH BLVD.
SANTA ANA RIVER
STAGE NO. 6 STONE BREAKWATER & EXTENSION OF JETTY
N
SCALE IN FEET
2500 0 2500 5000 7500
58 TH ST.
52 ND ST.
48 TH ST.
44 TH ST.
40 TH ST.
36 TH ST.
32 ND ST.
28 TH ST.
STAGE NO. 3
STAGE NO. 2
STAGE NO. 4B
STAGE NO. 5
STAGE NO. 10
NEWPORT BEACH
PIER
EXISTING BERM
+20
+10
0
-10
-20
MLLW
ARTIFICIAL FILL
+12
10
11
20
1
EXISTING GROUND SURFACE
0 200 400 600 800 1000
SECTION OF BEACH FILL AT SURFSIDE
LOS ANGELES CO
SAN BERNARDINO CO
ORANGE CO
RIVERSIDE CO
SAN DIEGO CO
PACIFIC OCEAN
MEXICO
VICINITY MAP
SCALE
MILES
AREA COVERED BY MAP
LEGEND
Work Completed as of 30 September 1995
Work Proposed With Funds Available For FY 1996
Work Proposed With Funds Requested For FY 1997
Work Required to Complete the Project After FY 1997
BEACH EROSION CONTROL PROJECT
STATUS MAP
SURFSIDE-SUNSET AND NEWPORT BEACH
(ORANGE COUNTY), CALIFORNIA
(SHORE PROTECTION)
LOS ANGELES DISTRICT
SOUTH PACIFIC DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Clifton, Arizona (Continuing)

LOCATION: The town of Clifton is located on the San Francisco River in Greenlee County, Arizona, approximately 170 miles northeast of Tucson.

DESCRIPTION: The project consists of both structural and nonstructural elements, including an earthfill levee approximately 3,000 feet in length, with floodgates, bridge modifications, and evacuation and relocation of 86 residences in the floodplain and floodproofing of 11 businesses. Recreation development consists of 59 tent campsites and 113 recreational vehicle sites within an area of 20 acres.

AUTHORIZATION: Water Resources Development Act of 1990.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable because construction is substantially complete.

TOTAL BENEFIT-COST RATIO: 1.07 to 1 at 8-7/8 percent.

INITIAL BENEFIT-COST RATIO: 1.03 to 1 at 8-7/8 percent (FY 1991).

BASIS OF BENEFIT-COST RATIO: Benefits based on Final General Design Memorandum revised November 1992 at October 1989 price levels.

SUMMARIZED FINANCIAL DATA			ACCUMULATED PCT OF EST FED COST	STATUS (1 JAN 96)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$11,500,000		Entire Project	75	July 1997
Estimated Non-Federal Cost		6,300,000				
Cash Contributions	$2,205,000					
Other Costs	4,095,000					
Total Estimated Project Cost		$17,800,000				

		ACCUMULATED PCT OF EST FED COST
Allocations to 30 September 1995	$ 8,833,000	
Conference Allowance for FY 1996	900,000	
Allocation for FY 1996	2,463,000 1/	
Allocations through FY 1996	11,296,000	98
Allocation Requested for FY 1997	204,000	100
Programmed Balance to Complete after FY 1997	0	
Unprogrammed Balance to Complete after FY 1997	0	

1/ Reflects $75,000 reduction assigned as savings and slippage and $1,638,000 reprogrammed to the project.

PHYSICAL DATA

Structural Flood Control

South Clifton Levee	
Length:	2,943 feet
Height:	4 to 17.1 feet
Floodgate, Highway 666	
Width:	36 feet
Height:	15.7 feet
Floodgate, SPRR Bridge	
Width:	18 feet
Height:	16.5 feet
Excavation of riverbed:	88,300 cubic yards
Floodwall Length	
Upstream from bridges:	100 feet
Between bridges:	12 feet
Downstream from bridges:	70 feet

Non-Structural Flood Control

Floodproofing	
Numbering of buildings:	11
Floodshields:	4
Floodwalls:	1
Wet Floodproofing:	6
Relocation:	86

Recreational Development

Total acres:	20
Tent campsites:	59
Recreational Vehicle sites:	113

JUSTIFICATION: The town of Clifton was built on the meander belt of the San Francisco River, at the base of the steep valley walls cut by the river. The town has virtually no protection from floodflows. Damaging floods have occurred at least ten times over the past 100 years (since 1891). On October 1, 1983, Clifton was hit by the most severe flood on record which swept through the town leaving behind a scene of devastation. During the flood, the San Francisco River peaked at 90,900 cubic feet per second, about a 50-year flood, and flows reached depths of more than 9 feet in portions of the town, depositing piles of debris up to 6 feet high. Residential damages included total destruction of approximately 40 homes, major damages to 231, and minor damages to 52. Forty-one businesses were destroyed, 57 suffered major damages and eight sustained minor damages. Because of a shortage of emergency housing, people were forced to live in seriously overcrowded conditions, with up to 40 persons per house as long as a month after the flood. The 366-foot long, U.S. Route 666 bridge which crosses the San Francisco River at Clifton also was overtopped during the flood. Emergency costs and damages together totaled nearly $20 million, $27.9 million at October 1995 prices. Following the flood, the President issued a disaster declaration for 11 counties, including Greenlee County. In response, and in cooperation with the community and other Federal, State and local agencies, the Corps of Engineers conducted a study and developed a plan combining structural and nonstructural elements. Average annual benefits, at October 1989 price levels, are as follows:

Annual Benefits	Amount
Flood damage prevention	$ 464,000
Relocation	485,000
Other Benefits (Redevelopment benefits, reoccupation cost savings, and insurance cost savings)	146,000
Total	$1,095,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Complete recreation construction	$ 192,000
Planning, Engineering and Design	4,000
Construction Management	8,000
Total	$ 204,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas for the nonstructural portion of the project (not to exceed 25 percent of the cost).	$1,350,000	
Provide lands, easements, rights-of-way, and dredged material disposal areas for the structural portion of the project.	1,779,000	
Modify or relocate utilities, roads, bridges (including railroad bridges), and other facilities, where necessary for the construction of the project for the structural portion of the project.	841,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, repair, rehabilitation and replacement of recreation facilities for the project.	1,930,000	$48,000
Pay 5 percent of the structural costs allocated to flood control and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	400,000	15,000
Total Non-Federal Costs	$6,300,000	$63,000

The Non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The State of Arizona Division of Emergency Services is the local sponsor. By approval of House Bill 2098, Chapter 72, on May 1, 1991, the State of Arizona reaffirmed its support of the project at a level consistent with current cost-sharing policy for construction. A Local Cooperation Agreement (LCA) was executed 30 July 1993.

The current non-federal cost estimate of $6,300,000, which includes a cash contribution of $2,205,000, is an increase of $2,100,000 over the non-Federal cost estimate of $4,200,000 noted in the Local Cooperation Agreement, which included a cash contribution of $1,675,000. On 19 October 1995, the non-Federal sponsor indicated that it is financially capable and willing to contribute the increased non-Federal share. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

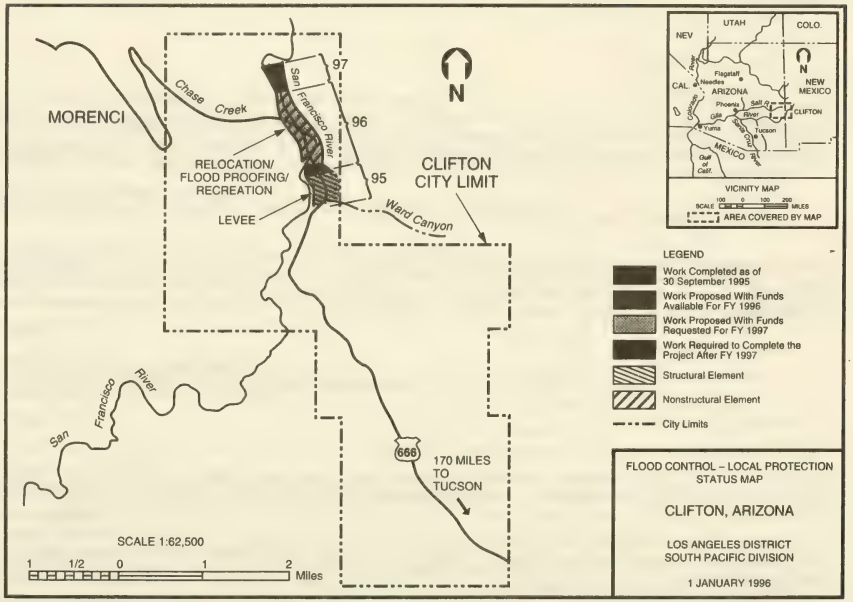
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $11,500,000 is an increase over the latest estimate ($9,900,000) presented to Congress (FY 1996). This change includes the following items.

Item	Amount
Price Level on Construction feature	$ - 35,000
Post Contract Award and Other Estimating Adjustments	+ 971,000
Price Escalation on Real Estate	+ 664,000
Total	$ 1,600,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Impact Statement (EIS) was included in the Final Survey and Environmental Impact Statement for Flood Control and Related Purposes, Clifton, Arizona, September 1986. A Supplemental Environmental Assessment (SEA) was completed May 1991. The SEA amends the original EIS for Clifton. A Section 404(b)(1) evaluation is included in the SEA. The project is in compliance with the recently-enacted Arizona Environmental Quality Act.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1988. Funds to initiate construction were appropriated in FY 1991.

The total estimated project cost ($17,800,000) is the maximum authorized cost, as limited by Section 902 of Water Resources Development Act of 1986. However, because of higher costs of lands, demolition and construction management; refinement of recreation design; and additional flood proofing construction costs, the total estimate has increased to $21,100,000, $13,800,000 Federal and $7,300,000 non-Federal. A Post Authorization Change (PAC) is being processed to effect these increases and introduce reauthorization of the project.


MORENCI
Chase Creek
San Francisco River
97
96
95
RELOCATION/
FLOOD PROOFING/
RECREATION
LEVEE
CLIFTON
CITY LIMIT
Ward Canyon
San Francisco River
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Yuma
Tucson
Colorado River
MEXICO
Gulf of Calif.
VICINITY MAP
SCALE 100 0 100 200 MILES
AREA COVERED BY MAP
LEGEND
Work Completed as of 30 September 1995
Work Proposed With Funds Available For FY 1996
Work Proposed With Funds Requested For FY 1997
Work Required to Complete the Project After FY 1997
Structural Element
Nonstructural Element
City Limits
FLOOD CONTROL – LOCAL PROTECTION
STATUS MAP
CLIFTON, ARIZONA
LOS ANGELES DISTRICT
SOUTH PACIFIC DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Rillito River, Arizona (Continuing)

LOCATION: The project is located in the Tucson metropolitan area, Pima County, Arizona.

DESCRIPTION: The recommended plan for the project is the NED plan and consists of 13.2 miles of soil cement bank protection, 15 grade control structures to control streambed degradation, and recreational development along the Rillito River.

AUTHORIZATION: Energy and Water Development Appropriation Act, 1990

REMAINING BENEFIT - REMAINING COST RATIO: 1.7 to 1 at 8-1/2 percent.

TOTAL BENEFIT-COST RATIO: 1.7 to 1 at 8-1/2 percent.

INITIAL BENEFIT-COST RATIO: 1.05 to 1 at 8-1/2 percent (FY 1994).

BASIS OF BENEFIT-COST RATIO: The benefits are based on the Limited Reevaluation Report dated February 1994 at October 1993 price levels.

SUMMARIZED FINANCIAL DATA			ACCUMULATED PCT OF EST FED COST	STATUS (1 JAN 96)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$25,000,000		Entire Project	57	Mar 1997
Estimated Non-Federal Cost		8,500,000				
Cash Contributions	$2,020,000					
Other Costs	237,000					
Credit in lieu of Cash for Advance Work	6,243,000					
Total Estimated Project Cost		$33,500,000				

SUMMARIZED FINANCIAL DATA (Continued)

			ACCUMULATED PCT OF EST FED COST
Allocations to 30 September 1995	$ 16,106,000		
Conference Allowance for FY 1996	4,894,000		
Allocation for FY 1996	4,488,000	1/	
Allocations through FY 1996	20,594,000		82
Allocation Requested for FY 1997	4,406,000		100
Programmed Balance to Complete after FY 1997	0		
Unprogrammed Balance to Complete after FY 1997	0		

1/ Reflects $406,000 reduction assigned as savings and slippage.

PHYSICAL DATA

Bank Protection: Type - Soil Cement
Length - 13.2 miles
Dimensions - 8 foot horizontal width
slope 1 on 1
Berm width 20 feet

Invert Stabilizers: Type - Soil cement capped with 4 feet rollcrete
Quantity - 15
Dimension - 10-foot top
24-30 foot bottom

Recreation:
Bicycling, jogging, equestrian and biking trails along the banks of the river. Staging and rest areas at the upper and lower end.

1566

JUSTIFICATION: The Rillito River drains an area of about 1,000 square miles and empties into the Santa Cruz River at Tucson. Urban development within the project area, current population over 535,000, is subject to serious flood damage. Seven significant floods occurred from 1962 to 1983 causing serious damage to businesses, residential property, agriculture, and transportation. The flood of record occurred in October 1983 and caused $10 million in damages ($15.6 million at 1995 prices). The February 1993 flood caused bank damage and other topography changes to the Rillito River. Work of an emergency nature in the amount of $2.7 million was performed by the local sponsor in a cost sharing arrangement with the Soil Conservation Service. Average annual benefits, based on October 1993 price levels, are as follows:

Annual Benefits	Amount
Bank and Channel Stabilization	$1,000,000
Recreation	1,506,000
Total	$2,506,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Complete channel construction	$3,640,000
Recreation Facilities	190,000
Construction Management	376,000
Cultural Resources	200,000
Total	$4,406,000

23-577 96-50

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Provide lands, easements, rights of way, and borrow and excavation dredged material disposal areas.	$ 97,000	$
Modify or relocate utilities, roads, bridges (expect railroad bridges), and other facilities where necessary for the construction of the project.	140,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	289,000	4,000
Pay 24 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities, which are partially offset by a credit allowed ($6,243,000) based on prior work (Section 104 of the WRDA 1986).	7,974,000	80,000
Total Non-Federal Costs	$ 8,500,000	$84,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: Pima County Transportation and Flood Control District is the local sponsor. By letter dated 24 February 1994, the sponsor reaffirmed its support and willingness to financially participate in the construction of the project at a level consistent with current cost-shared policy for construction. On 23 June 1994, the Project Cooperation Agreement (PCA) was executed in compliance with the requirements of the Water Resources Development Act of 1986. The current non-Federal cost estimate of $8,500,000 includes a cash contribution of $8,263,000 which is to be partially offset by a credit of $6,243,000 allowed for locally-constructed flood control work determined to be in accordance with Section 104 of the Water Resources Development Act of 1986.

The local sponsor has completed approximately 11 miles (in addition to the 13.2 miles authorized) of soil cement bank protection and has been approved for credit for this work under Section 104 of the Water Resources Development Act of 1986 in May 1988. The upper limit is $6,243,000 or 25 percent of the flood control costs, whichever is less.

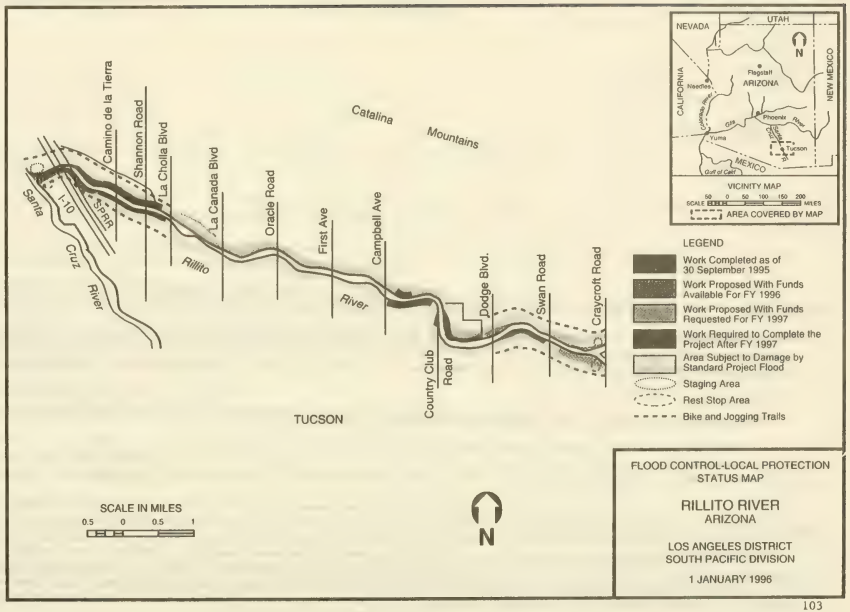
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $25,000,000 is the same as the latest estimate presented to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: Final Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) was submitted with the revised Feasibility Report in February 1987. A supplemental EA was included in the Draft Design Memorandum submitted in April 1992 and revised in May 1995 to address impacts to certain native plants.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1987, and funds to initiate construction were appropriated in FY 1994.

U.S. ARMY ENGINEER DISTRICT

CORPS OF ENGINEERS



FLOOD CONTROL-LOCAL PROTECTION
STATUS MAP

RILLITO RIVER
ARIZONA

LOS ANGELES DISTRICT
SOUTH PACIFIC DIVISION

1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Coyote and Berryessa Creeks, California (Continuing)

LOCATION: The project is located in San Jose and Milpitas, Santa Clara County, California.

DESCRIPTION: The recommended project includes offset levees and an overflow channel on Coyote Creek, and two sedimentation basins, concrete lined trapezoidal channel and offset levees on Berryessa Creek. Provisions are also included for fish and wildlife mitigation for both Coyote and Berryessa Creeks.

AUTHORIZATION: Water Resources Development Act of 1990, National Defense Authorization Act for Fiscal Year 1994.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable for Coyote Creek element because project construction is substantially complete. (See OTHER INFORMATION FOR Berryessa Creek element.)

TOTAL BENEFIT-COST RATIO: 2.9 to 1 at 8-1/2 percent for Coyote Creek element. (See OTHER INFORMATION FOR Berryessa Creek element.)

INITIAL BENEFIT-COST RATIO: 2.8 to 1 at 8-1/2 percent (FY 1994) for Coyote Creek element. (See OTHER INFORMATION FOR Berryessa Creek element.)

BASIS OF BENEFIT-COST RATIO: Benefits for Coyote Creek are from the General Design Memorandum dated May 1993, and approved August 1994 at October 1993 price levels. Benefits for Berryessa Creek are from the Berryessa Creek Draft GDM dated November 1993 at October 1992 price levels.

SUMMARIZED FINANCIAL DATA

Coyote Creek Element

Estimated Federal Cost		$30,800,000
Estimated Non-Federal Cost		$30,490,000
Cash Contribution	$ 3,050,000	
Other Costs	50,613,000	
Reimbursements/Credits	-23,173,000	
Section 104	- $ 8,633,000	

	STATUS (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Coyote Creek		95%	Jan 1997
Berryessa Creek	Not started		Unscheduled
Entire Project		75% 1/	Unscheduled

1/ Reflects work completed by local sponsor as creditable work to the project (see STATUS OF LOCAL COOPERATION.)

DIVISION: South Pacific DISTRICT: Sacramento Coyote and Berryessa Creeks, California

SUMMARIZED FINANCIAL DATA (continued)

Section 26 - 3,000,000		
Section 215 - 3,000,000		
50/50 Reimb - 8,540,000		
Total Coyote Creek Element		$ 61,290,000
Berryessa Creek Element		
Estimated Federal Cost		$13,200,000
Estimated Non-Federal Cost		$ 4,350,000
Cash Contribution	$ 2,140,000	
Other Costs	2,210,000	
Total Berryessa Creek Element		$17,550,000
Project Summary		
Estimated Federal Cost		$44,000,000
Estimated Non-Federal Cost		$34,840,000
Cash Contribution	$ 5,190,000	
Other Costs	52,823,000	
Reimbursements/Credits	-23,173,000	
Section 104 - $ 8,633,000		
Section 26 - 3,000,000		
Section 215 - 3,000,000		
50/50 Reimb - 8,540,000		
Total Estimated Project Cost		$ 78,840,000

		ACCUM. PCT. OF EST. COST
Allocations to 30 September 1995	$19,782,000	
Conference Allowance for FY 1996	12,000,000	
Allocation for FY 1996	11,005,000 1/	
Allocations through FY 1996	30,787,000	70
Allocations Requested for FY 1997	2,400,000	75
Programmed Balance to Complete after FY 1997	500,000	
Unprogrammed Balance to Complete after FY 1997	10,313,000	

PHYSICAL DATA	
Coyote Creek	
Offset levees and Overflow channel	22,000 feet
Berryessa Creek	
Sedimentation basins	two
Concrete lined channel	16,400 feet
Offset levees	4,800 feet

1/ Reflects $995,000 reduction assigned as savings and slippage.

JUSTIFICATION: The project is necessary for flood protection for a densely populated and highly industrialized area within the Santa Clara Valley. Current populations for the two principal cities, San Jose and Milpitas, are 850,000 and 59,000 respectively. The area also includes multiple large industrial complexes. Coyote Creek drains an area of about 350 square miles and the Berryessa Creek drainage basin covers about 22 square miles. The December 1955 maximum flood of record on Coyote Creek would cause damages of over $9.9 million (October 1993 prices). The most recent flood in February 1983 caused over $6 million in damages to Coyote Creek and Alviso residents were forced to evacuate their homes. Damages to residential and commercial/industrial properties due to overbank flooding on Berryessa Creek also occurred. To accelerate the project, the local sponsor has already completed integral construction on Reaches 1 and 2 on Coyote Creek. The sponsor also awarded a contract on 17 October 1994 to proceed with additional integral project construction on Reach 3. The completed project will provide a 100 year level of protection. Average annual benefits, all flood control, are estimated at $19 million at October 1993 price levels for Coyote Creek and $3.4 million at October 1992 price levels for Berryessa Creek.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Coyote Creek	
Complete fish and wildlife mitigation work	275,000
Planning, Engineering and Design	70,000
Construction Management	62,000
Sponsor Credit	
Complete 50/50 reimbursement to non-Federal sponsor	1,690,000
Berryessa Creek	
Planning, Engineering and Design	303,000
Total	$ 2,400,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986 the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Coyote Creek		
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas, which may be reduced for credit allowed based on prior work (Section 104 of the Water Resources Development Act of 1986 ($8,633,000), Section 26 of the Water Resources Development Act of 1988 (not to exceed $3,000,000) and Section 215 of the Flood Control Act of 1968 (not to exceed $3,000,000) after reductions for such credit have been made in the required cash payments.	$17,833,000	

NON-FEDERAL COST (continued)

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, and perform prior work under Section 104 of the Water Resources Development Act of 1986, Section 26 of the Water Resources Development Act of 1988, and Section 215 of the Flood Control Act of 1968, where necessary for the construction of the project.	18,147,000	
Pay 5 percent of the costs allocated to flood control, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	3,050,000	340,000
Federal reimbursement to non-Federal sponsor for one-half of the non-Federal costs allocated to flood control in excess of Federal costs.	- 8,540,000	
Coyote Creek Total	$30,490,000	$340,000
Berryessa Creek		
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	$ 1,781,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	429,000	

NON-FEDERAL COST (continued)

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Pay 12 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	2,140,000	105,000
Berryessa Creek Total	$ 4,350,000	$105,000
Total Non-Federal Costs	$34,840,000	$445,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION:

The Project Cooperation Agreement for the Coyote Creek project element was executed in August 1994. The sponsor applied for and has received credit in the amount of $8,633,000 for completed Coyote Creek work under Section 104 of Water Resources Development Act of 1986. The sponsor has completed construction of Coyote Creek Reach 2 integral work under Section 26 of the Water Resources Development Act of 1988 and has received $3,000,000. Sponsor has initiated construction of Coyote Creek Reach 3A integral work under Section 215 of the Flood Control Act of 1968, as amended, with credit not to exceed $3,000,000. The Berryessa Creek PCA execution is currently unscheduled.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $44,000,000 reflects an increase of $2,150,000 from the latest estimate submitted to Congress (FY 1996). The current cost estimate includes changes in the following items:

Item	Amount
Price Escalation on Construction Features	$1,382,000
Post Contract Award and Other Estimating Adjustments	768,000
Total	$2,150,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final EIS for both Coyote and Berryessa Creeks was filed with EPA on 8 July 1988. An Environmental Assessment/Finding of No Significant Impact (EA/FONSI) was reached on the Coyote GDM dated May 1993.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1988.

Water Resources Development Act of 1986 authorized planning, engineering and design only. Water Resources Development Act of 1990 authorized construction.

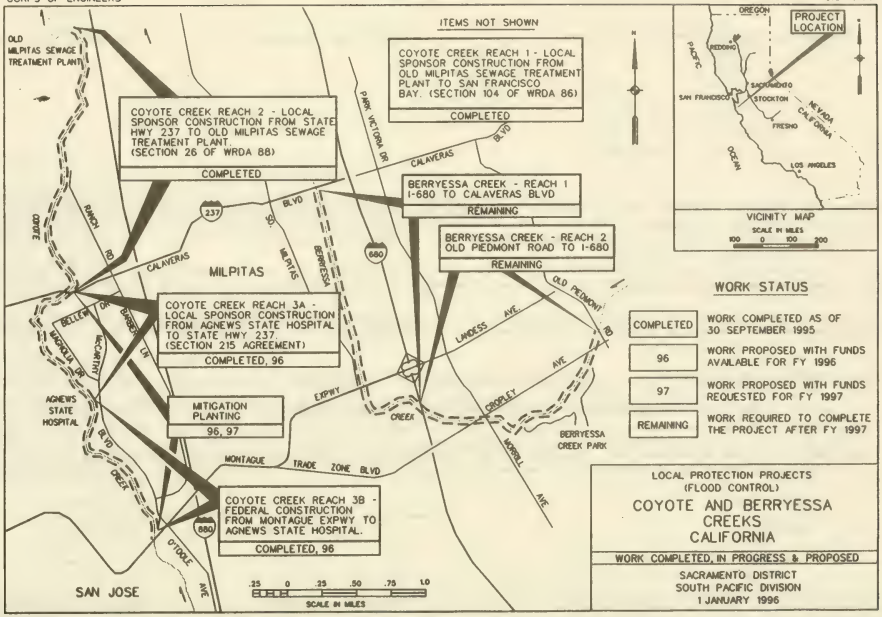
The National Defense Authorization Act for Fiscal Year 1994 directed the Secretary to construct the project notwithstanding Section 902 of the Water Resources Development Act 1986.

The construction contract for Coyote Creek Reach 3B was awarded on 27 September 1994, an is scheduled for completion in January 1996. The mitigation contract for the Coyote Creek project element is scheduled for award in Spring 1996.

Design of Berryessa Creek is currently being refined to address local environmental/aesthetic and cost concerns. The latest economic and cost analysis in the Berryessa Creek Draft GDM dated November 1993 resulted in a benefit-cost ratio less than unity. This project element is currently being refined. The economic analysis for the modified design is currently scheduled for September 1997.

CORPS OF ENGINEERS

U.S. ARMY



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APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Guadalupe River, California (Continuing)

LOCATION: The project is located in San Jose, Santa Clara County, California.

DESCRIPTION: The authorized plan consists of channel improvements on the Guadalupe River between Interstate Highways 880 and 280, a distance of approximately 2.5 miles with provisions for fish and wildlife mitigation as necessary. The project under construction is the Locally Preferred Plan (LPP). The non-Federal sponsor is responsible to pay 100 percent of the difference in cost between the LPP and the NED plan.

AUTHORIZATION: Water Resources Development Act of 1986, Energy and Water Development Appropriations Act for 1990, and Energy and Water Development Appropriations Act for 1992.

REMAINING BENEFIT-REMAINING COST RATIO: 7.7 to 1 at 8-5/8 percent.

TOTAL BENEFIT-COST RATIO: 2.4 to 1 at 8-5/8 percent.

INITIAL BENEFIT-COST RATIO: 2.2 to 1 at 8-5/8 percent (FY 1990)

BASIS OF BENEFIT-COST RATIO: Benefits are from the General Design Memorandum dated December 1991 at October 1991 price levels for the NED project.

SUMMARIZED FINANCIAL DATA			STATUS (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$ 63,300,000	Entire Project	50%	Being Determined
Estimated Non-Federal Cost		74,470,000			
Cash Contribution	$ 10,910,000				
Other Costs	79,241,000				
Reimbursements	-15,681,000				
Section 104	-$ 5,701,000				
50/50	- 9,980,000				
Total Estimated Project Cost		$137,770,000			

PHYSICAL DATA	
Concrete channel	1,510 Feet
Earth channel	27,055 Feet
Box culverts	2,535 Feet
Concrete gabions & mats	4,655 Feet
Excavated bench	6,250 Feet
Gabion terraces	4,130 Feet
Recreation trails	17,500 Feet
Recreation riverwalk	13,350 Feet
Concrete retaining walk	1,920 Feet

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1995	$ 30,250,000	
Conference Allowance for FY 1996	8,100,000	
Allocation for FY 1996	7,428,000 1/	
Allocations through FY 1996	37,678,000	60
Allocation Requested for FY 1997	5,000,000	67
Programmed Balance to Complete After FY 1997	20,622,000	
Unprogrammed Balance to Complete After FY 1997	0	

1/ Reflects $672,000 reduction assigned as savings and slippage,

JUSTIFICATION: The Guadalupe River drains an area of about 160 square miles and its 100-year flood plain encompasses approximately 7,000 acres, including downtown San Jose, and consists of both residential and light industrial development. The 1994 population for the city of San Jose was estimated at 836,000. Flood producing storms have occurred fifteen times since 1945, the most recent in March 1995. The storm of record occurred in December 1955, inundating 8,300 acres and causing approximately $1.3 million in damages in the Guadalupe River drainage basin. Damages from a 100 year flood under 1994 conditions and prices would be approximately $584 million. Flooding also occurred in the January 1995 storm (20-year event), where there was minor out-of-bank flooding in Reach 3. During the March 1995 storm (25-year event), there was substantial street flooding caused by out-of-bank flooding in Reach 3 and a lack of storm drain capacity. During both storms, the I-280/Route 87 freeway interchange was partially inundated, resulting in closure of Route 87. It is believed that project improvements at the I-880 bridge prevented extensive bridge foundation erosion. The project will provide 100-year flood protection to downtown San Jose, including approximately 1,020 commercial, industrial, and public structures, 3,270 private residences, four major traffic arteries, and the San Jose International Airport. Average annual benefits at October 1991 price levels are as follows:

Annual Benefits	Amount
Flood Damage Prevention	$24,210,000
Recreation	3,660,000
Total	$27,870,000

FISCAL YEAR 1997: The requested amount will be used as follows:

Initiate Fish Wildlife Mitigation from Coleman Avenue to New Julian Street	$ 34,000
Initiate Channel and Recreation Construction from Coleman Avenue to New Julian Street	1,226,000
Initiate Fish & Wildlife Mitigation Monitoring from New Julian Street to Interstate 280	68,000
Initiate Channel and Recreation Construction from New Julian Street to Park Avenue	2,426,000
Initiate Railroad Bridge Relocation from Coleman Avenue to New Julian Street	587,000
Continue Real Estate Certification	13,000
Continue Cultural Resources from Coleman Avenue to Interstate 280	81,000
Complete Fish & Wildlife Mitigation from Hedding Street to Coleman Avenue	107,000
Planning, Engineering, and Design	147,000
Construction Management	311,000
Total	$5,000,000

1581

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986 the non-Federal sponsor must comply with the requirements listed below (Also see OTHER INFORMATION):

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation Maintenance, Repair, Rehabilitation and Replacement Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas, which are partially offset by a credit allowed ($5,701,000) for prior work (Section 104 of the WRDA 1986).	$47,949,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	25,591,000	
Pay 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	6,190,000	$1,300,000
Pay the incremental construction costs for the locally preferred plan.	3,850,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, repair, rehabilitation and replacement of recreation facilities.	870,000	1,050,000
Federal reimbursement to non-Federal sponsor for one-half of the non-Federal costs allocated to flood control in excess of Federal costs.	- 9,980,000	
Total Non-Federal Costs	$74,470,000	$2,350,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The Santa Clara Valley Water District is the local sponsor for both the flood control portion and the recreation portion of this project. The Local Cooperation Agreements (LCA's) were executed 30 March 1992. The current non-Federal cost estimate of $74,470,000 which includes a cash contribution of $10,910,000 is the same non-Federal cost estimate presented in the Local Cooperation Agreement, which included a cash contribution of $12,200,000. The Santa Clara Valley Water District has applied for credit in the amount of $28,400,000 for completed work under Section 104 of WRDA 1986. The Section 104 Credit Evaluation Report recommends $5,700,000 and was reflected in the flood control LCA. Reimbursement of Section 104 credits was initiated in FY 1993 and was completed in FY 1994 after initiation of a majority of the project construction. Total non-Federal costs are anticipated to exceed 50% of the costs allocated to flood control. Reimbursement for those excess costs was initiated in FY 1994. The sponsor continues to be financially able to support the project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $63,300,000 is unchanged from the latest estimate presented to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement (FEIS) was filed in October 1986. Environmental assessments (EA's) were circulated for public review and comment on the changes to the Feasibility report and FEIS. Results of the review were included in the December 1991 General Design Memorandum (GDM) and the Record of Decision was filed with EPA on 12 February 1992.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1986 and funds to initiate construction were appropriated in FY 1990. The scheduled completion date is currently being determined due to budgetary priorities and constraints.

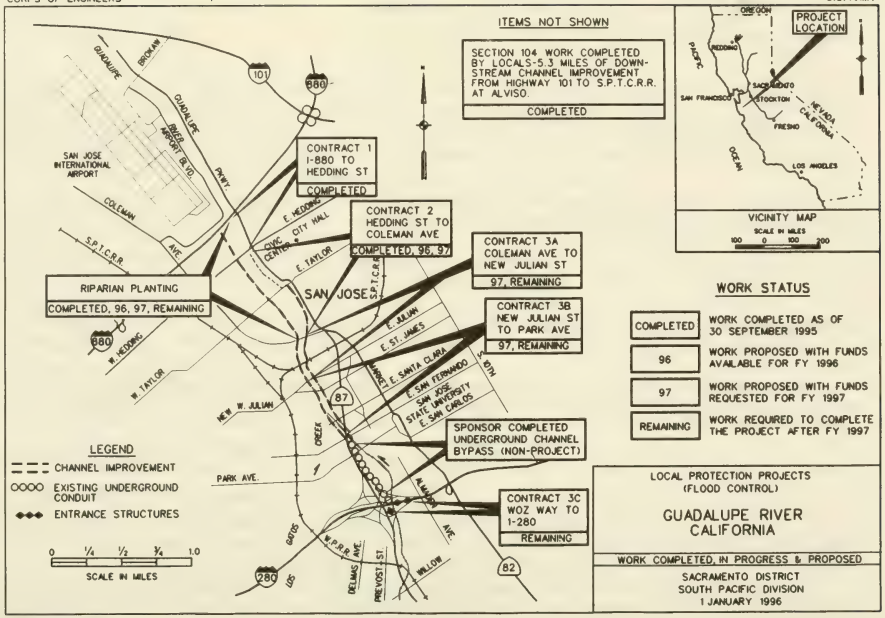
The Energy and Water Development Appropriations Act, 1990, directed the Secretary to construct the project notwithstanding Section 902 of the Water Resource Development Act 1986.

The Energy and Water Development Appropriations Act, 1992, directed the Secretary to modify and construct the project in accordance with the January 1991 GDM. While the current plan being implemented differs slightly from the January 1991 GDM Plan, it is consistent with the Guadalupe River Park plan requested by the local sponsor and with cost sharing policy.

The Locally Preferred Plan (LPP) is a plan that is a locally acceptable engineering modification of the authorized plan presented in the July 1985 Feasibility Report/Environmental Impact Statement. It is also the basis for the larger, locally developed, Guadalupe River Park (GRP) Plan. The GRP is a major part of the City of San Jose's current redevelopment plan for the downtown area. The local sponsor, Santa Clara Valley Water District, has agreed to cost share the project in proportion to the National Economic Development Plan (NED), pay all incremental construction costs associated with the LPP, and one-half of the recreation costs.

CORPS OF ENGINEERS

U.S. ARMY



APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Los Angeles County Drainage Area, California (Continuing)

LOCATION: The project covers a 2,000 square-mile area within the county of Los Angeles and includes portions of the metropolitan region of the city of Los Angeles.

DESCRIPTION: The project consists of upgrading the existing system, raising and converting channel walls of the Rio Hondo and lower Los Angeles River channels, and modifying bridges.

AUTHORIZATION: Water Resources Development Act of 1990, subject to approval of the Feasibility Report by the Assistant Secretary of the Army for Civil Works.

REMAINING BENEFIT - REMAINING COST RATIO: 2.5 to 1 at 8 1/4 percent.

TOTAL BENEFIT-COST RATIO: 2.4 to 1 at 8 1/4 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are from the Final Feasibility Report revised in June 1992, at October 1991 price levels.

SUMMARIZED FINANCIAL DATA			ACCUMULATED PCT OF EST FED COST	STATUS (1 JAN 96)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$204,000,000		Bridges	Not Started	Being Determined
Estimated Non-Federal Cost		108,000,000		Channels	0	Being Determined
Cash Contributions	$ 15,600,000					
Other Cost	92,400,000			Entire Project	0	Being Determined
Total Estimated Project Cost		$312,000,000				
Allocations to 30 September 1995		$ 10,450,000	1/			
Conference Allowance for FY 1996		11,367,000				
Allocation for FY 1996		8,424,000	1/			
Allocations through FY 1996		18,874,000	09			
Allocation Requested for FY 1997		14,400,000	16			
Programmed Balance to Complete after FY 1997		$170,726,000				

1/ Reflects $943,000 reduction assigned as savings and slippage and $2,000,000 reprogrammed from the project.

PHYSICAL DATA

CHANNELS

Parapet walls - approximately 21 miles

Rio Hondo, Whittier Narrows Dam to Los Angeles River - 9 miles

Los Angeles River, Rio Hondo to ocean -12 miles

Converting trapezoidal channel to rectangular channel - approximately 1.2 miles Rio Hondo -.7 miles

Los Angeles River -.5 miles

Armoring backslopes of levees

Rio Hondo

Compton Creek

Los Angeles (Atlantic Boulevard to ocean)

BRIDGES - Modify 25 on Los Angeles River

JUSTIFICATION: The Los Angeles County Drainage Area, current population of over 9 million, is partially protected by an urban flood control system which includes Corps flood control structures consisting of 5 major reservoirs, 22 debris basins, and 470 miles of channel improvements. The existing system, protecting the second largest urban metropolitan area in the United States, has prevented over $3.7 billion in damages since construction. However, the flood of 1969 in Los Angeles County caused widespread damages of over $12 million, $54.9 million at 1995 prices. As urbanization of the basin has grown over the past 40 years, the ability of the existing systems to provide design levels of protection has diminished. The February-March 1980 floods exceeded the capacity of the channel in the upper reaches of the Los Angeles River and nearly overtopped the levee in the lower Los Angeles River near the city of Long Beach. A breach in the levee could have induced catastrophic damages to residential, commercial, and industrial properties in Long Beach. Studies to date indicate that a 100-year flood would affect 52,000 acres, with damages totaling about $2.35 billion. Portions of the existing system cannot contain a 50-year flood event. Average annual benefits, at October 1991 price levels, are $58,616,000, all flood control.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue Construction of Parapet Walls (Pacific Ocean to Willow Street), complete nosing for five bridges and Compton Creek	$12,000,000
Planning, Engineering and Design	1,600,000
Construction Management	800,000
Total	$14,400,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-ways, and borrow and excavated or dredging disposal areas. (Requirement under sponsor's ownership)	$ 4,770,000	$
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	87,630,000	
Pay 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	15,600,000	20,000
Total Non-Federal Costs	$108,000,000	$20,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: In February 1992, the Los Angeles County Department of Public Works, the local sponsor, reaffirmed its support and willingness to financially participate in the construction of the project at a level consistent with the current cost-sharing policy for construction. The Project Cooperation Agreement was executed 7 August 1995.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $204,000,000 is a decrease of $79,000,000 from the latest estimate ($283,000,000) presented to Congress (FY 1996). This change includes the following items:

Price Escalation on Construction Features	$- 12,360,000
Design Changes	- 66,640,000
Total	$- 79,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Impact Statement (EIS) was publicly reviewed and submitted as part of Final Feasibility Report. The Record of Decision (ROD) was recorded by the Assistant Secretary of Army for Civil Works on 19 July 1995. A supplemental Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) were prepared for the 1st construction feature (Compton Creek) to reflect an additional 1,000 feet of levee armoring. The FONSI was signed in October 1993. The local sponsor is preparing the Environmental Impact Report (EIR) to meet California Environmental Quality Act requirements. The local sponsor completed the Environmental Impact Report in April 1995 which met California Environmental Quality Act requirements.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1992, and funds to initiate construction were appropriated in FY 1995.

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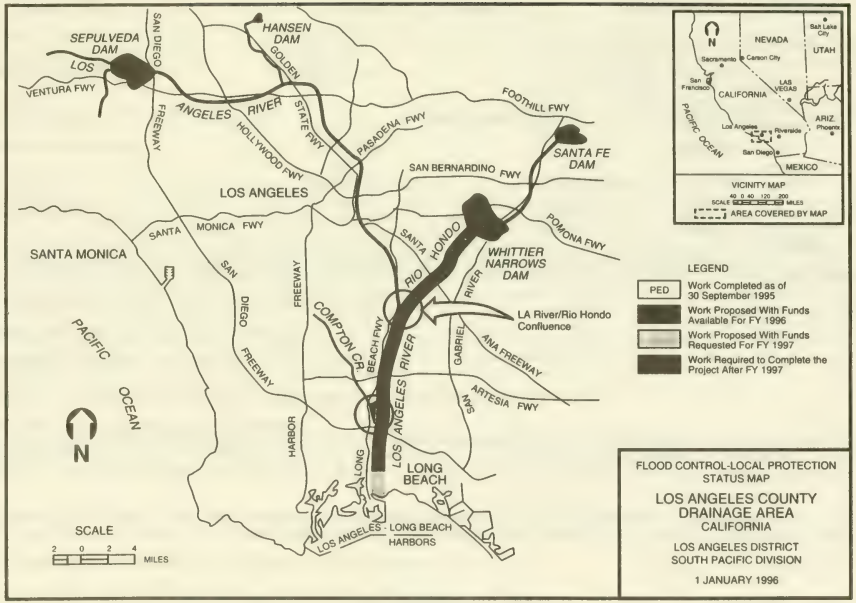

SEPULVEDA DAM
HANSEN DAM
SANTA FE DAM
WHITTIER NARROWS DAM
LOS ANGELES RIVER
VENTURA FWY
SAN DIEGO FREEWAY
GOLDEN STATE FWY
HOLLYWOOD FWY
PASADENA FWY
FOOTHILL FWY
SAN BERNARDINO FWY
POMONA FWY
LOS ANGELES
SANTA MONICA
SANTA MONICA FWY
SAN DIEGO FREEWAY
FREEWAY
SANTA ANA RIVER
RIO HONDO
COMPTON CRK
BEACH FWY
GABRIEL RIVER
ANA FREEWAY
ARTESIA FWY
SWS
LA River/Rio Hondo Confluence
PACIFIC OCEAN
HARBOR
LONG BEACH
LOS ANGELES - LONG BEACH HARBORS
N
SCALE
2 0 2 4 MILES
NEVADA
UTAH
Salt Lake City
Sacramento
Carson City
San Francisco
CALIFORNIA
LAS VEGAS
ARIZ.
Phoenix
Los Angeles
Riverside
San Diego
MEXICO
VICINITY MAP
40 0 40 120 200
SCALE MILES
AREA COVERED BY MAP
LEGEND
PED Work Completed as of 30 September 1995
Work Proposed With Funds Available For FY 1996
Work Proposed With Funds Requested For FY 1997
Work Required to Complete the Project After FY 1997
FLOOD CONTROL-LOCAL PROTECTION STATUS MAP
LOS ANGELES COUNTY DRAINAGE AREA
CALIFORNIA
LOS ANGELES DISTRICT
SOUTH PACIFIC DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Lower Sacramento Area Levee Reconstruction, CA (Continuing)

LOCATION: The project is located within the boundaries of the Sacramento River Flood Control System in Sacramento County in north-central California. The area includes the lower Sacramento River and its distributary sloughs and the city of Clarksburg.

DESCRIPTION: An evaluation of about 295 miles of the Sacramento River Flood Control Project levees in the Lower Sacramento area identified about 47 miles of levees that are structurally deficient. The project includes reconstructing about 2 miles of these levees by installing landside berms with toe drains, embankment modifications, the restoration of levee height and developing land for fish and wildlife mitigation.

AUTHORIZATION: Flood Control Acts of 1917, 1928, and 1941; River and Harbor Act of 1937.

REMAINING BENEFIT-REMAINING COST RATIO: 3.2 to 1 at 8 percent.

TOTAL BENEFIT-COST RATIO: 2.9 to 1 at 8 percent.

INITIAL BENEFIT-COST RATIO: 2.9 to 1 at 8 percent (FY 1996).

BASIS OF BENEFIT-COST RATIO: Benefits are from the Sacramento River Flood Control System Evaluation - Lower Sacramento Area Initial Appraisal Report (IAR) dated October 1993 and approved in April 1994 at 1993 price levels.

SUMMARIZED FINANCIAL DATA		STATUS (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	$3,450,000	Entire Project	Not Started	Being Determined
Estimated Non-Federal Cost	1,140,000		PHYSICAL DATA	
Cash Contribution	$ 680,000	Levee Reconstruction:	R.D. 3	(Grand Island)
Other Costs	460,000		R.D. 150	(Merritt Island)
			R.D. 349	(Sutter Island)
Total Estimated Project Cost	$4,590,000		R.D. 999	(The Big Area)
			Length - 2.4 miles	
			Fish and Wildlife Mitigation	

Division: South Pacific District: Sacramento Lower Sacramento Area Levee Reconstruction, California

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED COST
Allocations to 30 September 1995	$ 247,000 1/	
Conference Allowance for FY 1996	500,000	
Allocation for FY 1996	755,000 2/	
Allocation through FY 1996	1,002,000	29
Allocation Requested for FY 1997	50,000	30
Balance to Complete After FY 1997	$ 2,398,000	

1/ Funding of $247,000 through Fiscal Year 1995 included in the Sacramento River Flood Control Project and reallocated to the Lower Sacramento Area Levee Reconstruction Project.

2/ Reflects $41,000 reduction assigned as savings and slippage and $296,000 reprogrammed to the project.

JUSTIFICATION: Levee evaluation studies of approximately 295 miles of project levees have been completed in Sacramento, Solano and Yolo Counties. Results indicate that structural problems caused by ongoing seepage and levee subsidence exist. Reconstruction will be required to maintain the integrity of the existing Sacramento River Flood Control Project and assure the system continues to provide the original design levels of flood protection. The levees were locally constructed and incorporated into the project levee system when it was authorized in 1917. The most serious seepage has been at the southern tip of Sutter Island. During the 1955-56 flood, a sand boil developed beyond the levee toe approximately 125 feet from the left bank levee of Sutter Slough and 125 feet from the right bank levee of Steamboat Slough. As a result of the February 1986 floods, high flows caused boils and extensive seepage occurred at the landward toe and landward of both levees along the Sacramento River, and landside levee embankment slope failures are a continual problem. During high flows in January and March 1995, considerable seepage and boils developed on the Sacramento River in Sacramento County. The areas protected by the levees comprise over 49,000 acres, mostly agriculture, about 1,300 structures, primarily residences and farm structures, with a population of about 2,200. Estimated average annual flood damages are $4.4 million. Average annual benefits, all flood control, are estimated at $690,000 at October 1993 price levels.

FISCAL YEAR 1997: The requested amount of $50,000 will be applied as follows:

Planning, Engineering and Design	$50,000
Total	$50,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	$ 460,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	0	
Pay 15 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	680,000	$ 0 1/
Total Non-Federal Costs	$1,140,000	$ 0

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

1/ Reconstruction will reduce, not increase, operation and maintenance costs. Operation and maintenance costs are included in the original Sacramento River Flood Control Project and are the responsibility of the non-Federal interests.

STATUS OF LOCAL COOPERATION: The California State Reclamation Board will act as the local sponsor for reconstruction work. A Project Cooperation Agreement will be executed prior to initiation of construction currently scheduled for October 2000.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $3,450,000 is a decrease of $450,000 from the latest estimate ($3,900,000) presented to Congress (FY 1996) as part of the Sacramento River Flood Control Project. This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ 73,000
Authorized Modifications	$ -523,000
Total	$ -450,000

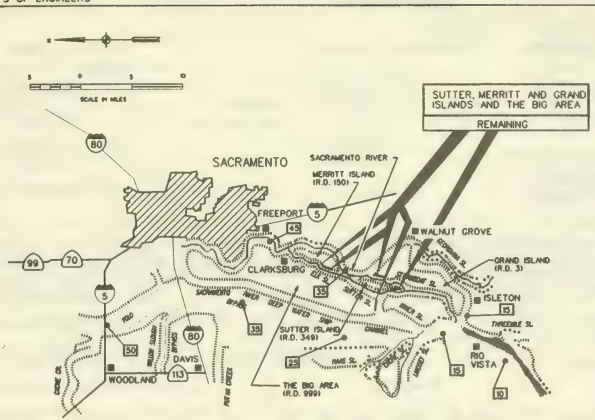
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The original Sacramento River Flood Control Project was substantially complete prior to the National Environmental Policy Act of 1969. An Environmental Impact Statement (EIS) was not prepared. A Programmatic Environmental Impact Statement/Environmental Impact Report (EIS/EIR) on the levee reconstruction for the Mid-Valley Area, Lower Sacramento Area and Upper Sacramento Area, the remaining three phases of the Sacramento River Flood Control System Evaluation, was filed with EPA on 19 June 1992 and the Record of Decision was signed 4 November 1992. The Programmatic EIS/EIR discusses the environmental impacts resulting from potential work for the entire area in general terms. An environmental document on site-specific environmental impacts for recommended work in the Lower Sacramento area will be prepared prior to initiating construction.

OTHER INFORMATION: Following the record high flows of February 1986, Operations and Maintenance funds were provided under Inspection of Completed Works to perform an evaluation of the integrity of the Sacramento River Flood Control System. A five phase program which divided the system into five study areas was developed. In each phase, the structural stability of the levees is examined and a determination made as to whether the system is functioning at its design level. The results of each study phase are submitted as an IAR.

The IAR for the Lower Sacramento Area dated October 1993 was approved in April 1994. Funds to initiate engineering and design were appropriated in FY 1994 (Sacramento River Flood Control Project, California). Funds to initiate construction were appropriated in FY 1996. Of the fourteen deficient areas evaluated in the IAR, four are economically feasible based on an incremental analysis. These areas include Reclamation District (R.D.) 3 (Grand Island), R.D. 150 (Merritt Island), R.D. 349 (Sutter Island), and R.D. 999 (The Big Area). The total estimated project cost includes design of four economically feasible areas and additional areas that are dependent on project levees. Failure of the infeasible areas will be analyzed to determine any adverse effect to the feasible areas. An economic analysis of these additional areas will be

performed during the DM phase. The local sponsor contends that economic justification should be based on a system evaluation which would compare total cost of all required levee reconstruction of the Sacramento River Flood Control Project and total benefits attributable to that work. The rationale is based on Operations and Maintenance procedures that were formulated for the system to function as a whole. A Limited Reevaluation Report (LRR) was completed in September 1993, approved in March 1994, and revised in May 1995 for the economic analysis for all five phases of the Sacramento River Flood Control System Evaluation.

Due to budget priorities and constraints, initiation of construction has been delayed to Fiscal Year 2002.



VICINITY MAP

SCALE IN MILES

100 0 100 200

WORK STATUS

COMPLETED	WORK COMPLETED AS OF 30 SEPTEMBER 1995
96	WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1996
97	WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997
REMAINING	WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997

LEGEND

- PROJECT LEVEE
- LOCATION OF LEVEE RECONSTRUCTION WORK (INCREMENTALLY FEASIBLE)
- LOCATION OF LEVEE RECONSTRUCTION WORK (INCREMENTALLY INFEASIBLE)
- 90 RIVER MILES

ITEM NOT SHOWN

MITIGATION CONTRACT
REMAINING

LOCAL PROTECTION PROJECTS (FLOOD CONTROL)

LOWER SACRAMENTO AREA LEVEE RECONSTRUCTION CALIFORNIA

WORK COMPLETED, IN PROGRESS & PROPOSED

SACRAMENTO DISTRICT
SOUTH PACIFIC DIVISION
1 JANUARY 1996

1595

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Marysville/Yuba City Levee Reconstruction, CA (Continuing)

LOCATION: The project is located within the boundaries of the Sacramento River Flood Control System in Butte, Sutter and Yuba Counties in north-central California. The area includes the Feather and Yuba Rivers and their tributaries, Sutter Bypass and the cities of Marysville and Yuba City and the communities of Linda and Olivehurst.

DESCRIPTION: An evaluation of about 134 miles of the Sacramento River Flood Control Project levees in the Marysville/Yuba City area identified about 22 miles of levees as being structurally deficient. The project consists of reconstructing those levees by installing about 17 miles of toe drains, installing about four miles of slurry cut-off walls and backfilling about one mile of a drainage ditch to rectify the deficiency. The project also consists of about ten miles of restoring levee heights and about 76 acres for fish and wildlife mitigation.

AUTHORIZATION: Flood Control Acts of 1917, 1928, and 1941; River and Harbor Act of 1937.

REMAINING BENEFIT-REMAINING COST RATIO: 20.2 to 1 at 8-3/4 percent.

TOTAL BENEFIT-COST RATIO: 8.9 to 1 at 8-3/4 percent.

INITIAL BENEFIT-COST RATIO: 3.2 to 1 at 8-3/4 percent (FY 1993).

BASIS OF BENEFIT-COST RATIO: Initial benefits are from the Sacramento River Flood Control System Evaluation - Marysville/Yuba City Area Budget Decision Document dated February 1991 and revised in May 1991 at 1990 price levels. Current benefits are from the Sacramento River Flood Control Project, California, Marysville/Yuba City Area, Design Memorandum dated January 1993, revised April 1993 and approved in May 1994 at 1992 price levels.

SUMMARIZED FINANCIAL DATA			STATUS (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$ 23,600,000	Entire Project	7	Being Determined
Estimated Non-Federal Cost		7,800,000			
Cash Contribution	$ 1,760,000				
Other Costs	6,040,000				
Total Estimated Project Cost		$31,400,000			

Division: South Pacific District: Sacramento Marysville/Yuba City Levee Reconstruction, California

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED COST
Allocations to 30 September 1995	$ 4,416,000	
Conference Allowance for FY 1996	6,000,000	
Allocation for FY 1996	3,132,000 1/	
Allocations through FY 1996	7,548,000	32
Allocation Requested for FY 1997	$ 4,200,000	50
Programmed Balance to Complete After FY 1997	11,852,000	

PHYSICAL DATA

Levee Reconstruction:

Toe Drains	- 11 miles
Toe Drains and Levee Height Restoration	- 5 miles
Cut-Off Walls	- 4 miles
Levee Height Restoration	- 3 miles
Fish and Wildlife Mitigation	- 76 acres
Backfill Drainage Ditch	- .9 mile

1/ Reflects $498,000 reduction assigned as savings and slippage, and $2,370,000 reprogrammed from the project.

JUSTIFICATION: Levee evaluation studies of approximately 134 miles of project levees have been completed in the Marysville and Yuba City area. Results indicate that structural problems caused by ongoing seepage and subsidence exist on about 22 miles of levees with inadequate levee height existing on about 10 miles of those levees. Reconstruction will be required to maintain the integrity of the existing Sacramento River Flood Control Project. The project will assure the system continues to function as designed. The levees were locally constructed and incorporated into the project levee system when it was authorized in 1917. High flow conditions during the February 1986 storm event resulted in a levee break on the Yuba River, the evacuation of about 24,000 people and about $95 million in flood damages. Additional flood damages of about $2 million were incurred on the Feather and Bear Rivers and about $1 million in post flood levee repair work was required. The levee system protects about 100,000 people in the Marysville/Yuba City area. Levee failure would result in significant property damages and potential loss of life. Average annual benefits, all flood control, are estimated at $25,530,000 at October 1992 price levels.

FISCAL YEAR 1997: The requested amount of $4,200,000 will be applied as follows:

Initiate construction of contract 2b (Marysville/Yuba City)	537,000
Continue Fish & Wildlife Mitigation Planting Contract	158,000
Complete Construction of Contract 2a (Marysville/Yuba City)	2,563,000
Cultural Resources	50,000
Certification of non-Federal Lands	92,000
Planning, Engineering and Design	100,000
Construction Management	700,000
Total	$4,200,000

Division: South Pacific District: Sacramento Marysville/Yuba City Levee Reconstruction, California

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	$ 4,090,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	1,950,000	
Pay 6 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	1,760,000	$ 0 1/
Total Non-Federal Costs	$ 7,800,000	$ 0

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

1/ Reconstruction will reduce, not increase, annual operation and maintenance costs. Operation and maintenance costs are included in the original Sacramento River Flood Control Project and are the responsibility of the non-Federal interests.

STATUS OF LOCAL COOPERATION: The California State Reclamation Board is the local sponsor for reconstruction work. A Project Cooperation Agreement (PCA) satisfying the requirements of Section 221, Flood Control Act of 1970 (Public Law 91-611) and consistent with the Water Resources Development Act of 1986 (Public Law 99-662) was signed on 19 July 1994. The current non-Federal cost estimate of $7,800,000, which includes a cash contribution of $1,760,000, has not changed from the non-Federal cost estimate of $7,800,000 noted in the Project Cooperation Agreement, which included a cash contribution of $1,820,000. The non-Federal sponsor is financially capable and willing to contribute the non-Federal share.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $23,600,000 is an increase of $300,000 from the latest estimate ($23,300,000) presented to Congress (FY 1996). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ 86,000
Post Contract Award and Other Estimating Adjustments	214,000
Total	$300,000

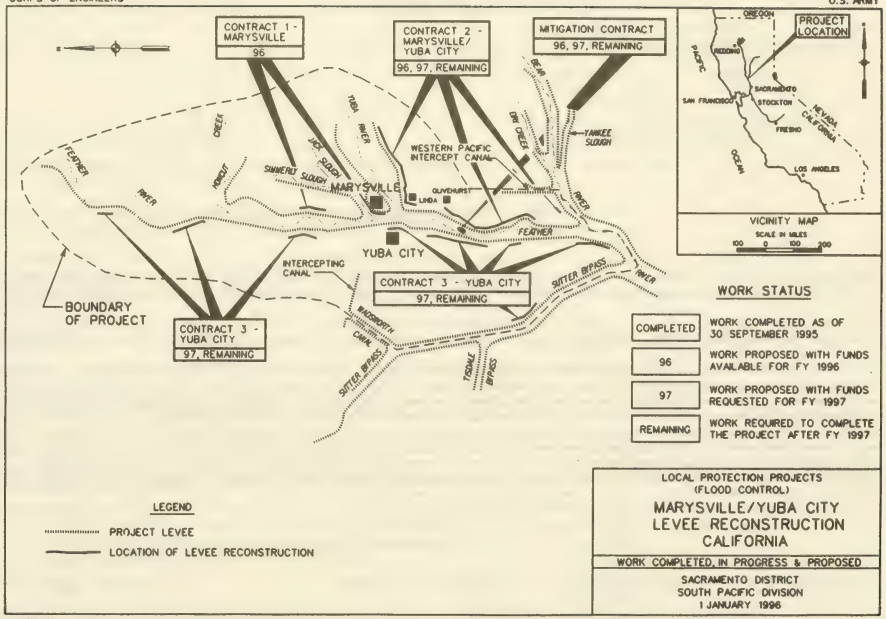
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The original Sacramento River Flood Control Project was substantially complete prior to 1970 and an Environmental Impact Statement (EIS) was not prepared. The final Programmatic Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the Marysville/Yuba City Area, Mid-Valley area, Lower Sacramento area and Upper Sacramento area, and the remaining three phases of the Sacramento River Flood Control System Evaluation, was filed with EPA on 19 June 1992 and the Record of Decision was signed on 4 November 1992. The Programmatic EIS/EIR discusses the environmental impacts resulting from potential work for the entire area in general terms. An Environmental Assessment (EA) was prepared to address the site-specific impacts resulting from the recommended work in the Marysville/Yuba City area in December 1992. A Finding of No Significant Impacts (FONSI) was signed on 28 April 1993.

OTHER INFORMATION: Funds to initiate engineering and design were appropriated in FY 1991 (Sacramento River Flood Control Project, California) and funds to initiate construction were appropriated in FY 1993.

A final Design Memorandum was prepared in January 1993, revised April 1993 and approved in May 1994. In addition to the reconstruction project, the local sponsor is also pursuing local betterments as part of contract 2-Marysville/Yuba City.

CORPS OF ENGINEERS

U.S. ARMY



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APPROPRIATION TITLE: Construction, General - Reservoirs (Flood Control)

PROJECT: Merced County Streams, California (Continuing)

LOCATION: The project is located in Merced County in the vicinity of the city of Merced, California, on the streams draining from the Mariposa County foothills of the Sierra Nevada into Merced County. The streams lie easterly of, and drain into, the San Joaquin River between the Chowchilla River on the south and the Merced River on the north. Castle Dam and Lake, the first element of the project constructed, is located on Canal Creek, about eight miles northwest of Merced.

DESCRIPTION: The project consists of increasing the flood control storage in the existing Bear Reservoir from 7,700 acre feet to 32,500 acre-feet, construction of a 40 foot high earthfill dam at the Castle Site with 6,400 acre-feet of flood control storage, and construction of a 78 foot high earthfill dam at the Haystack Site with 5,300 acre-feet of flood control storage. There will also be 33.4 miles of levee construction and channel modifications on Bear, Fahrens, and Black Rascal Creeks and a water management system for 2,859 acres for fish and wildlife mitigation.

AUTHORIZATION: 1970 Flood Control Act.

REMAINING BENEFIT - REMAINING COST RATIO: The remaining benefit cost ratio for Castle Dam and Lake is not applicable because the project is nearing completion. (For remaining project see Other Information).

TOTAL BENEFIT-COST RATIO: 1.06 to 1 at 8-1/8 percent. (See Other Information)

INITIAL BENEFIT - COST RATIO: 1.16 to 1 at 8-1/8 percent (FY 1985). (See Other Information)

BASIS OF BENEFIT-COST RATIO: Benefits are based on the Phase II General Design Memorandum approved in June 1982 at 1981 price levels.

SUMMARIZED FINANCIAL DATA			PCT. OF EST. FED. COST	STATUS (1 JAN 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$ 85,900,000		Castle Dam and Lake	100	Jan 1994
Programmed Construction	$17,760,000			Remaining Project	Not Started	Indefinite
Unprogrammed Construction	68,140,000			Entire Project	15	Indefinite
Estimated Non-Federal Cost		$ 38,600,000				
Programmed Construction	$ 5,000,000					
Cash Contribution	$ 530,000					
Other Costs	4,470,000					
Estimated Non-Federal Cost						
Unprogrammed Construction	$33,600,000					
Cash Contribution	$ 5,870,000					
Other Costs	27,730,000					
Total Estimated Programmed Construction Cost		$ 22,760,000				
Total Estimated Unprogrammed Construction Cost		101,740,000				
Total Estimated Project Cost		124,500,000				
Allocations to 30 September 1995		$ 15,448,000				
Conference Allowance for FY 1996		700,000				
Allocation for FY 1996		642,000 1/				
Allocations through FY 1996		16,090,000	19			
Allocation Requested for FY 1997		800,000	20			
Programmed Balance to Complete After FY 1997		870,000				
Unprogrammed Balance to Complete After FY 1997		68,140,000				

1/ Reflects $58,000 reduction assigned as savings and slippage.

1602

Castle Dam and Lake

Dam: Type - Impervious Core
Height - 40 feet
Length - 2,050 feet

Dikes: Type - Homogeneous
earthfill Length - 1,050 feet

Spillway: Type - Ungated,
concrete low ogee spillway
Crest width - 180 feet
Capacity - 3,900 c.f.s.

Lake Capacity: Flood Control
storage - 6,400 ac-ft

Lands and Damages: Acres - 1,219
Type - grazing and orchards
Improvements - Rural dwellings
and ranch buildings

Bear Dam and Lake

Dam: Type - Impervious Core
Height - 150 feet
Length - 3,100 feet

Spillway: Type - Ungated ogee converging to
spillway with stilling basin
Crest width - 185 feet converging to 120 ft
Capacity - 27,000 c.f.s.

Lake Capacity: Flood Control
storage - 32,500 ac-ft

Lands and Damages: Acres - 310
Type - grazing
Improvements - None

Bear Creek Stream Group
Channels: 33.4 miles
Levees:
Height - 3 to 10 feet
Length - 58 miles

Haystack Dam and Lake

Dam: Type - Homogeneous Fill
Height - 78 feet
Length - 2,300 feet

Spillway: Type - Ungated,
concrete, low ogee spillway
Crest width - 200 feet
Capacity - 4,600 c.f.s.

Lake Capacity: Flood Control
storage - 5,300 ac-ft

Lands and Damages: Acres - 682
Type - grazing
Improvements - None

Fish & Wildlife Mitigation
Acres - 2,859

1603

JUSTIFICATION: The project will provide flood protection to residential, commercial, and agricultural lands within and adjacent to the city of Merced. The population of Merced County was 90,440 in 1960, has increased to 198,800, and is expected to reach 236,000 by 2000. Rapid urbanization is increasing the severity of serious flooding problems that exist along the streams draining from the Sierra Nevada into Merced County. The current value of physical improvements in the 73,700 acre area protected by the project is estimated to be in excess of $2.7 billion. During the January-February 1969 floods, about 24,000 acres were flooded, with damages of $940,000 reported. With recurrence of that flood under current prices, damages would amount to about $4.0 million. The average annual benefits at 1981 price levels are as follows:

Annual Benefits	Amount
Flood Control	$7,205,000
General Recreation	225,000
Area Redevelopment	600,000
Total	$8,030,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Planning, Engineering and Design for Remaining Project	$ 800,000
Total	$ 800,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation Castle Dam	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal area.	$ 4,470,000	
Pay 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	530,000	$ 57,200
Total Castle Dam Non-Federal Costs	$ 5,000,000	$ 57,200

NON-FEDERAL COSTS (Continued)

Remaining Project

Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas.	$15,230,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	12,460,000	
Pay one-half of the separable cost allocated to recreation and bear all costs of operation, maintenance, repair, rehabilitation and replacement of recreation facilities. (Payments include $40,000 for lands)	270,000	$ 43,000
Pay 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	5,640,000	603,800
Total Remaining Project Non-Federal Costs	$33,600,000	$646,800
Total Non-Federal Costs	$38,600,000	$704,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The California Reclamation Board is the local sponsor of the authorized project. Merced County provides a percentage of the non-Federal costs to the Reclamation Board, as specified by applicable State Water Code. On 27 June 1986 a Local Cooperation Agreement for Castle Dam unit was signed in compliance with the requirements of the Supplemental Appropriations Act of 1985. State of California legislation (AB3369) was enacted on 14 September 1986 which enabled the Reclamation Board to use appropriated funds for acquisition of project lands, easements, rights-of-way and relocations and to loan funds to Merced County to pay their portion of these requirements in accordance with cost sharing and financing concepts subsequently reflected in the Water Resources Development Act of 1986. A new Local Cooperation Agreement for Castle Dam in compliance with the Water Resources Development Act of 1986 was signed by the Assistant Secretary of the Army 30 November 1988. The current non-Federal cost estimate for Castle Dam of $5,000,000, which includes a cash contribution of $530,000, is an increase of $2,630,000 from the non-Federal cost estimate of $2,370,000 noted in the Local Cooperation Agreement, which included a cash contribution of $430,000. The increase is due to revalued lands costs and a judgment award on Crane land litigation with additional lands and interest costs partially offset by deletion of requirements for Pacific Gas and Electric relocations and adjustments in inflation during construction. The local sponsor is financially capable and willing to contribute the increased non-Federal share. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for continuing to meet its financial commitment. (See OTHER INFORMATION)

COMPARISON OF FEDERAL COST ESTIMATES: **The current Federal cost estimate of $85,900,000 is the same as the latest estimate presented to Congress (FY 1996).**

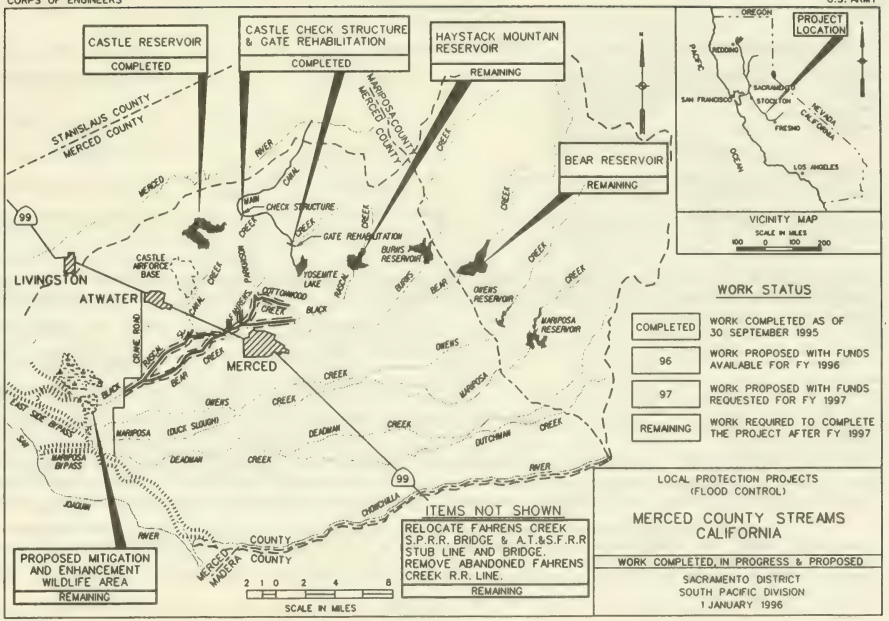
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed on 25 September 1981. A Supplemental Environmental Impact Statement is being developed for the remaining portion of the project.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1973 and funds to initiate construction were appropriated in the FY 1985 Supplemental Appropriations Act.

The California Reclamation Board and the Merced County Board of Supervisors have indicated support for the balance of the project through Letters of Intent dated 29 August 1991 and 20 August 1991, respectively. Benefit-cost information is based on current project scope, over 80% of which is unprogrammed, estimated at $124,500,000 as previously reported to Congress. Project scope is being reevaluated in a General Design Memorandum (GDM). The GDM is also reassessing project costs and benefits for the remainder of the project. Upon completion of design and negotiation of cost sharing arrangements for the remainder of the project, the Project Cooperation Agreement could be executed as early as FY 2000.

CORPS OF ENGINEERS

U.S. ARMY



APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Mid-Valley Area Levee Reconstruction, CA (Continuing)

LOCATION: The project is located within the boundaries of the Sacramento River Flood Control System in Placer, Solano, Sutter, Yolo and Yuba Counties in north-central California. The area includes the Sacramento and Feather Rivers, Knights Landing Ridge Cut, Sutter and Yolo Bypasses and portions of the Bear River including Yankee Slough, Dry, Cache, Putah Creek and the Natomas Cross Canal. Communities in the area include Knights Landing, Robbins, Davis and Woodland.

DESCRIPTION: An evaluation of about 240 miles of the Sacramento River Flood Control Project levees in the Mid-Valley area identified about 20 miles of levees that are structurally deficient. The project includes reconstructing about 18 miles of these levees by installing landside berms with toe drains, relocation of ditches, embankment modifications, slurry cut-off walls, and developing land for fish and wildlife mitigation.

AUTHORIZATION: Flood Control Acts of 1917, 1928, and 1941; River and Harbor Act of 1937.

REMAINING BENEFIT-REMAINING COST RATIO: 1.3 to 1 at 8 percent.

TOTAL BENEFIT-COST RATIO: 1.12 to 1 at 8 percent.

INITIAL BENEFIT-COST RATIO: 1.12 to 1 at 8 percent (FY 1996).

BASIS OF BENEFIT-COST RATIO: Benefits are from the Sacramento River Flood Control Project, California, Mid-Valley Area, Phase III, Design Memorandum (DM) dated September 1995 at 1995 price levels. DM approval is currently scheduled for April 1996.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		$25,700,000
Estimated Non-Federal Cost		8,700,000
Cash Contribution	$6,330,000	
Other Costs	2,370,000	
Total Estimated Project Cost		$34,400,000

STATUS (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	Not Started	Being Determined

PHYSICAL DATA

Levee Reconstruction:	
Toe Drains	- 6.9 miles
Cut-Off Walls	- .2 miles
Embankment Modifications	- 11.2 miles
Fish and Wildlife Mitigation	- 65 acres

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED COST
Allocations to 30 September 1995	$ 2,517,000 1/	
Conference Allowance for FY 1996	500,000	
Allocation for FY 1996	838,000 2/	
Allocation through FY 1996	3,355,000	13
Allocation Requested for FY 1997	100,000	13
Balance to Complete After FY 1997	$22,245,000	

1/ Funding of $2,517,000 through Fiscal Year 1995 included in the Sacramento River Flood Control Project and reallocated to Mid-Valley Area Levee Reconstruction Project.

2/ Reflects $41,000 reduction assigned as savings and slippage and $379,000 reprogrammed to the project.

JUSTIFICATION: Levee evaluation studies of approximately 240 miles of project levees have been completed in Placer, Solano, Sutter, Yolo and Yuba Counties. Results indicate that structural problems caused by ongoing seepage and levee subsidence exist. Reconstruction will be required to maintain the integrity of the existing Sacramento River Flood Control Project and assure the system continues to provide the original design levels of flood protection. The levees were locally constructed and incorporated into the project levee system when it was authorized in 1917. The area has experienced frequent floods, many occurring before streamflow data were recorded. Devastating floods in 1950, 1955, and 1964 caused loss of life and property damage in the area. The winter of 1982-83 has been described as California's wettest winter in more than a century and resulted in a disastrous year of flooding. Of California's 58 counties, 45 were declared national disaster areas including 5 in the Mid-Valley study area. The town of Knights Landing was threatened when water backed up in the Knights Landing Ridge Cut (a bypass channel parallel to the Sacramento River from Knights Landing to Yolo Bypass). The levees in the Knights Landing Ridge Cut area were originally constructed by local landowners and modified by the Corps of Engineers in the 1950's. Between 1956 and 1986, emergency flood repairs (PL 84-99) have been required 4 times on the Knights Landing Ridge Cut levees. Major storms in February 1986 resulted in record floods. Sutter County's Reclamation District (R.D.) 1500 incurred a 500-foot-long slump up to 4 feet deep on the west side of the levee in the Sutter Bypass near Robbins. High flows caused boils and extensive piping damage. During high flows in January and March 1995, considerable seepage and boils developed on the Sacramento River in Sutter and Yolo Counties. The areas protected by the levees comprise over 93,000 acres, mostly agriculture, and about 2,500 structures, primarily residences and farm structures with a population of about 3,100. Estimated average annual flood damages are $4.8 million. The county of Sutter qualifies as an area of substantial and persistent unemployment. Average annual benefits, all flood control, are estimated at $3,150,800 at October 1995 price levels.

FISCAL YEAR 1997: The requested amount of $100,000 will be applied as follows:

Planning, Engineering and Design	$ 100,000
Total	$ 100,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	$2,343,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary for the construction of the project.	27,000	
Pay 19 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	6,330,000	$ 0 1/
Total Non-Federal Costs	$8,700,000	$ 0

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

1/ Reconstruction will reduce, not increase, annual operation and maintenance costs. Operation and maintenance costs are included in the original Sacramento River Flood Control Project and are the responsibility of the non-Federal interests.

STATUS OF LOCAL COOPERATION: The California State Reclamation Board will act as the local sponsor for reconstruction work. Two Project Cooperation Agreements (PCA's) will be executed prior to initiation of construction. The first PCA is currently scheduled for June 1996 which will include construction for Reclamation District (R.D. 1500) (Contracts 1A, 1B and 1C). The second, for remaining construction, is scheduled for January 2001. (See OTHER INFORMATION)

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $25,700,000 is an increase of $8,700,000 from the latest estimate ($17,000,000) presented to Congress (FY 1996) as part of the Sacramento River Flood Control Project. This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ 609,000
Authorized Modifications	8,091,000
Total	$8,700,000

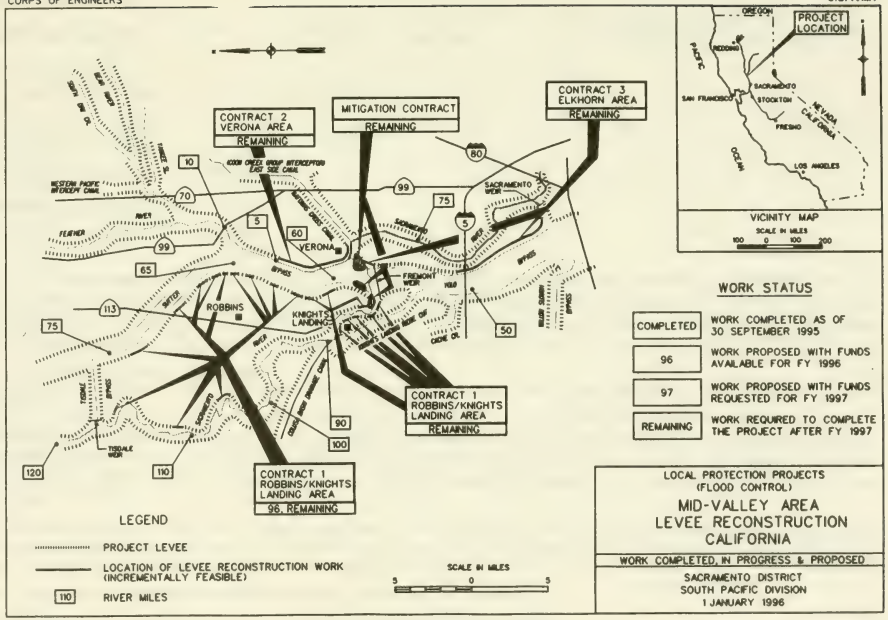
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The original Sacramento River Flood Control Project was substantially complete prior to the National Environmental Policy Act of 1969. An Environmental Impact Statement (EIS) was not prepared. A Programmatic Environmental Impact Statement/Environmental Impact Report (EIS/EIR) on the levee reconstruction for the Mid-Valley Area, Lower Sacramento Area and Upper Sacramento Area, the remaining three phases of the Sacramento River Flood Control System Evaluation, was filed with EPA on 19 June 1992 and the Record of Decision was signed 4 November 1992. The Programmatic EIS/EIR discusses the environmental impacts resulting from potential work for the entire area in general terms. An Environmental Assessment/Initial Study on site-specific impacts for recommended work in the Mid-Valley area was prepared and submitted for public review in May 1995. Final environmental documentation is scheduled for April 1996. The Finding of No Significant Impacts (FONSI) is scheduled to be signed in April 1996.

OTHER INFORMATION: Following the record high flows of February 1986, Operations and Maintenance funds were provided under Inspection of Completed Works to perform an evaluation of the integrity of the Sacramento River Flood Control System. A five phase program which divided the system into five study areas was developed. In each phase, the structural stability of the levees is examined and a determination made as to whether the system is functioning at its design level. The results of each study phase are submitted as an Initial Appraisal Report (IAR). The IAR for the Mid-Valley Area dated December 1991 was approved in October 1992. Funds to initiate engineering and design were appropriated in FY 1993 (Sacramento River Flood Control Project, California). Funds to initiate construction were appropriated in FY 1996. The DM was submitted in September 1995 and is currently scheduled for approval in March 1996. All four areas evaluated in the DM are economically feasible. These areas include R.D. 1500, Verona, Knights Landing, and Elkhorn Areas. A Limited Reevaluation Report (LRR) was completed in September 1993, approved in March 1994, and revised in May 1995 for the economic analysis for all five phases of the Sacramento River Flood Control System Evaluation.

A plan is underway to award a portion of R.D. 1500 (Contract 1) to respond to a request from R.D. 1500 to address the

OTHER INFORMATION (Continued)

seepage problem for levee reconstruction. Construction involves approximately 1,500 feet of pipe and backfilling of a drainage ditch. Work is scheduled to proceed upon execution of the PCA in June 1996. In addition, remaining construction contracts for R.D. 1500 (Contracts 1B and 1C) are scheduled for FY 1999 through FY 2004. Remaining construction has been delayed to FY 2002 due to budget priorities and constraints. As a result, a second PCA for remaining construction is scheduled for January 2001.


CONTRACT 2
VERONA AREA
REMAINING
MITIGATION CONTRACT
REMAINING
CONTRACT 3
ELKHORN AREA
REMAINING
CONTRACT 1
ROBBINS/KNIGHTS
LANDING AREA
REMAINING
CONTRACT 1
ROBBINS/KNIGHTS
LANDING AREA
96, REMAINING
VERONA
ROBBINS
KNIGHTS LANDING
SACRAMENTO WEIR
FREMONT WEIR
FEATHER
RIVER
BYPASS
SUTTER
TISDALE WEIR
WESTERN PACIFIC INTERCEPTOR CANAL
EAST SIDE CANAL
SACRAMENTO
YOLO
LINDE CK.
PROJECT LEVEE
LOCATION OF LEVEE RECONSTRUCTION WORK (INCREMENTALLY FEASIBLE)
RIVER MILES
SCALE IN MILES
5 0 5
OREGON
PROJECT LOCATION
REDDING
SACRAMENTO
STOCKTON
SAN FRANCISCO
FRESNO
LOS ANGELES
PACIFIC
OCEAN
NEVADA
CALIFORNIA
VICINITY MAP
SCALE IN MILES
100 0 100 200
WORK STATUS
COMPLETED
WORK COMPLETED AS OF 30 SEPTEMBER 1995
96
WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1996
97
WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997
REMAINING
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997
LOCAL PROTECTION PROJECTS
(FLOOD CONTROL)
MID-VALLEY AREA
LEVEE RECONSTRUCTION
CALIFORNIA
WORK COMPLETED, IN PROGRESS & PROPOSED
SACRAMENTO DISTRICT
SOUTH PACIFIC DIVISION
1 JANUARY 1996

1613

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Sacramento River Bank Protection Project, California (Continuing)

LOCATION: The project is located in north-central California, along the Sacramento River and its principal tributaries from Sacramento River RM 0.0 at Collinsville to Chico Landing at RM 194. It is within the limits of the existing Sacramento River Flood Control Project levees and includes Butte Basin, Cache Slough, and a portion of the Sacramento-San Joaquin Delta slough.

DESCRIPTION: The project provides a long-range program of bank protection to protect the levees within the limits of the Sacramento River Flood Control Project from erosion. It prevents undermining of levee sections and includes fish and wildlife mitigation features. Some recreational facilities have been provided along the river. Remaining recreation facilities are dependent upon final design and negotiation of cost sharing agreements with the State of California. In addition, bank protection for the remaining portion of separable element 42 and beyond is currently unscheduled.

AUTHORIZATION: Flood Control Act of 1960; River Basin Monetary Authorization Act of 1974; Further Continuing Appropriations Act of 1983 and Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio for all project elements is not applicable because monetary benefits have not been quantified. In the reevaluation of project benefits for the Second Phase report, it was determined impractical to assign a monetary value to the benefits which would result from the removal of threats of eventual levee breaks when there are hundreds of vulnerable locations in various states of deterioration. Therefore, a project benefit-cost ratio was not included in the report submitted to the Congress on the advisability for remaining work.

TOTAL BENEFIT-COST RATIO: Not Applicable

INITIAL BENEFIT-COST RATIO: Not Reported

BASIS OF BENEFIT-COST RATIO: Not Applicable

SUMMARIZED FINANCIAL DATA

Pre Separable Element Work (Contracts 1-37, 38A and 39)

Estimated Federal Cost			$55,410,000
Programmed Construction		$ 54,205,000	
Unprogrammed Construction		1,205,000	
Estimated Non-Federal Cost			$27,710,000
Programmed Construction		$ 27,115,000	
Cash Contribution	$12,025,000		
Other Costs	15,090,000		
Estimated Non-Federal Cost			
Unprogrammed Construction		$595,000	
Cash Contribution	$595,000		
Other Costs		0	
Total Estimated Programmed Construction Cost			$81,320,000
Total Estimated Unprogrammed Construction Cost			$ 1,800,000
Total Pre-Separable Element			$83,120,000

Separable Element 38B

Estimated Federal Cost			$ 3,088,000
Estimated Non-Federal Cost			$ 1,030,000
Cash Contribution		$ 931,000	
Other Costs		99,000	
Total Separable Element 38B			$ 4,118,000

SUMMARIZED FINANCIAL DATA (Continued)

Separable Element 40		
Estimated Federal Cost		$19,193,000
Estimated Non-Federal Cost		$ 6,396,000
Cash Contribution	$ 5,020,000	
Other Costs	1,376,000	
Total Separable Element 40		$25,589,000
Separable Element 41		
Estimated Federal Cost		$14,674,000
Estimated Non-Federal Cost		$ 4,889,000
Cash Contribution	$ 3,930,000	
Other Costs	959,000	
Total Separable Element 41		$19,563,000
Separable Element 42		
Estimated Federal Cost		$41,560,000
Estimated Non-Federal Cost		$13,904,000
Cash Contribution	$11,630,000	
Other Costs	2,274,000	
Total Separable Element 42		$55,464,000

SUMMARIZED FINANCIAL DATA (Continued)

Separable Element 43

Estimated Federal Cost			$22,598,000
Programmed Construction		$ 1,536,000	
Unprogrammed Construction		21,062,000	
Estimated Non-Federal Cost			$ 7,498,000
Programmed Construction		$ 1,075,000	
Cash Contribution	$ 277,000		
Other Costs	798,000		
Estimated Non-Federal Cost			
Unprogrammed Construction		$ 6,423,000	
Cash Contribution	$ 5,269,000		
Other Costs	1,154,000		
Total Estimated Programmed Construction Cost			$ 2,611,000
Total Estimated Unprogrammed Construction Cost			$27,485,000
Total Separable Element 43			$30,096,000

First Phase - Fish and Wildlife Mitigation

Estimated Federal Cost			$ 1,247,000
Estimated Non-Federal Cost			$ 733,000
Cash Contribution		$ 133,000	
Other Costs		600,000	
Total First Phase - Fish and			$ 1,980,000

SUMMARIZED FINANCIAL DATA (Continued)

Third Phase (P,E&D only)

Estimated Federal Cost		$ 1,330,000
Estimated Non-Federal Cost		$ 440,000
Cash Contribution	$ 440,000	
Other Costs	0	
Total Third Phase (P,E&D only)		$ 1,770,000

1618

SUMMARIZED FINANCIAL DATA (Continued)

Project Summary			ACCUM. PCT. OF EST. FED COST	STATUS (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$159,100,000		Bank Protection	91	Indefinite
Programmed Construction	$136,833,000			Recreation	50	Indefinite
Unprogrammed Construction	22,267,000			Entire Project	91	Indefinite 2/
Estimated Non-Federal Cost		$ 62,600,000				
Programmed Construction	$ 55,582,000					
Cash Contribution	$34,386,000					
Other Costs	21,196,000					
Estimated Non-Federal Cost						
Unprogrammed Construction	$ 7,018,000					
Cash Contribution	$ 5,864,000					
Other Costs	$ 1,154,000					
Total Estimated Programmed Construction Cost		$192,415,000				
Total Estimated Unprogrammed Construction Cost		$ 29,285,000				
Total Estimated Project Cost		$221,700,000				
Allocations to 30 September 1995		$ 89,772,000				
Conference Allowance for FY 1996		$ 3,000,000				
Allocation for FY 1996		$ 2,751,000 1/				
Allocations through FY 1996		$ 92,523,000	58			
Allocation Requested for FY 1997		$ 6,100,000	62			
Programmed Balance to Complete After FY 1997		$ 38,210,000				
Unprogrammed Balance to Complete After FY 1997		$ 22,267,000				

PHYSICAL DATA

Bank Protection: 835,000 lineal feet
First Phase - 430,000 lineal feet
Second Phase - 405,000 lineal feet

1/ Reflects $249,000 reduction assigned as savings and slippage.

2/ Remaining work is unprogrammed pending a decision to construct these features and pending completion of a Supplemental Design Memorandum.

Division: South Pacific District: Sacramento

Sacramento River Bank Protection Project, California

(See OTHER INFORMATION)

JUSTIFICATION: The Sacramento River levee system was initiated as a purely local project and in many cases the levees were constructed close to the river banks without a protective berm. The levee system, which was adopted as the Sacramento River Flood Control Project in 1917, has been modified and expanded several times since that date but no major change in the basic levee alignment has been made since the original conception of the project. Bank protection is necessary to preserve the Sacramento River Flood Control Project and insure that it will continue to furnish the designed degree of protection. The levees are continuously threatened by erosion, and unless corrective measures are taken levee failures may occur with resultant catastrophic damage and possible loss of many lives. Flood events which occurred in February 1986 greatly emphasized these problems. Several levees located along the Sacramento River were subjected to an extensive amount of erosion due to the extremely high river flows. High flows in January and March 1995 caused flooding and erosion in the Butte Basin area along the Sacramento River, River Mile (RM) 188 at Glenn County Road 29. If levee repairs had not been made, additional flooding would have caused extensive loss of agricultural land and endangered residents in nearby communities of Butte City, Princeton and Colusa. The area protected by the levees comprise over one million acres in which about 50 communities are located; value of lands and improvements (1994) to be protected is about $47.4 billion and about 2,091,000 people live within the flood plain. The levee system enables the use of the flood plain for the benefit of the state and nation. The extremely fertile flood plain lands produce about 9 percent of the total agricultural production of the state and 23 percent of the rice production of the nation. The Sacramento River Bank Protection Project provides a long-range program of bank protection to protect the levees where serious erosion is occurring and to prevent erosion from undermining additional levee sections in the future. In addition to assuring urgently needed flood protection, the project provides recreation facilities consisting of boat-launching facilities, campgrounds, and picnic areas needed along the river to meet a rapidly increasing public demand. Since the initial bank protection contract was let in June 1963, about 756,000 lineal feet of bank protection has been provided. About 79,000 lineal feet of bank protection remains to be placed on the second phase of this project, and the local sponsor supports the addition of a third phase, which will require Congressional authorization.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Separable Element 42 (RM 0-145 and Lower American River RM 2-9)	
Initiate and complete Bank Protection along the Lower American River (RM 4.4)	$3,406,000
Initiate and complete Mitigation along the Lower American River (RM 4.4)	$410,000
Initiate and complete Mitigation RM 60-145	75,000
Planning, Engineering and Design	
Separable Element 40	33,000
Separable Element 41	80,000
Separable Element 42	1,309,000

Construction Management	787,000
Total	$6,100,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	$ 16,391,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	5,959,000	
Pay 15 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to one-third for work initiated prior to 30 April 1986, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	12,620,000	$ 761,000
Pay 20 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent for work initiated after 30 April 1986, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	27,630,000	262,000
Total Non-Federal Costs	$ 62,600,000	$1,023,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: Chapter 2188, Statutes of the State of California, approved by the Governor on 21 July 1961, established the State Reclamation Board as the agency to meet the requirements of local cooperation for the project. Assurances of local cooperation were accepted from the Board 5 February 1963. As of 30 September 1995, the State has

expended $40,458,000 for construction of the project. The Reclamation Board signed a Local Cooperation Agreement (LCA) satisfying the requirements of Section 221, Flood Control Act of 1970 (Public Law 91-611) for the remaining Second Phase work in May 1984. In accordance with provisions of the Water Resources Development Act of 1986 for separable project

STATUS OF LOCAL COOPERATION (Continued)

elements initiated after 30 April 1986, new LCAs were executed for separable element 41 on 15 August 1988 and for separable elements 38B, 40, and 42 on 7 December 1988. The LCA for the First Phase Mitigation was signed on 5 June 1990. Execution of a Project Cooperation Agreement for separable element 43, the last separable element in the Second Phase, is unscheduled which is a slippage from the latest completion date of January 1998 presented to Congress. This change is due to pending approvals to proceed with more comprehensive evaluations of design alternatives. The current non-Federal cost estimate of $62,600,000 is an increase of $15,700,000 from the estimate last presented to Congress of $46,900,000 for the entire project. The cash contribution of $40,250,000, included in the estimate, is an increase of $15,860,000 from the last estimate of $24,390,000 and is due to revised cost estimates from the local sponsor for lands, easements, rights of way and relocations and to reflect the remaining requirements for planning, engineering and design, construction management and remaining authorized bank protection. The State of California acknowledges the escalating costs and continues to be financially able and willing to participate in the project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $159,100,000 is an increase of $46,900,000 from the latest estimate ($112,200,000) presented to Congress (FY 1996). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ -163,000
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	47,063,000
Total	$ 46,900,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A final Environmental Impact Statement (EIS) was filed on 15 June 1973. A SEIS for the Second Phase was filed in February 1989. A final EIS for additional work in Butte Basin, and an update submitted as Supplement 4, were signed in June 1988. An Environmental Assessment/Site Specific Report (EA/SSR) was prepared for Contract 42A and a Finding of No Significant Impacts (FONSI) was signed on 15 February 1994. Currently, an EA/SSR to meet both Federal and State of California requirements is approved prior to construction of each bank protection contract. A Supplemental Design Memorandum No. 7 is being prepared to address the next increment of critical sites within second phase. A SEIS for the report is scheduled for completion in March 1997. A Supplemental Design Memorandum No. 8 is being prepared

for sites along the Lower American River and the SEIS is scheduled for completion in July 1996.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1962, and for construction in FY 1963. Construction of First Phase was completed in November 1974. Authority to proceed with additional bank protection works, Second Phase, was provided by Section 202, River Basin Monetary Authorization Act of 1974, Public Law 93-251. The

OTHER INFORMATION (Continued)

Further Continuing Appropriations Act, 1983 extended the limits of the project to include bank protection along the Sacramento River to the upstream ends of the project levees to Chico Landing (Butte Basin area). The Water Resources Development Act of 1986 modified the First Phase of the project to include acquisition of lands for establishment and maintenance of wildlife habitat at a total cost of $1,410,000 ($1,980,000 inflated through construction). A Design Letter Report for First Phase Mitigation was approved in May 1989 and later modified by Memorandum Addendum of 21 Aug 89. Acquisition and construction was scheduled to be complete in December 1993; however due to active land acquisition plans by State and Federal agencies on the upper Sacramento River, most, if not all, willing seller properties have been identified for other purposes. As a result, the local sponsor is experiencing difficulty finding a willing seller for the last parcel (approximately 90 acres). Revegetation of the sites already purchased has been highly successful and is serving as a model for revegetation efforts by others.

The U.S. Fish and Wildlife Service, by letter dated 7 November 1985, issued a Biological Opinion stating that the bank protection work along the Sacramento River from Chico Landing to Red Bluff and in the Butte Basin area would endanger the threatened valley elderberry longhorn beetle. The Service issued a revised opinion on 19 May 1987 which permitted limited rock revetment bank protection to be constructed in the Butte Basin. The potential impact to winter run salmon has also been a significant concern as the winter run salmon have experienced an alarming decline since 1969. National Marine Fisheries Service (NMFS) listed winter run salmon as a threatened species in November 1990. The winter run salmon biological data report was completed January 1991. NMFS Biological Opinion dated 28 October 1991 for the winter run salmon was non-jeopardy but lists recommended conservation measures. Winter run salmon along with bank swallows and Swainson's Hawk are also State listed species and a Biological Opinion was received from California Department of Fish and Game on 18 November 1991 which also recommends conservation measures. By letter dated 16 September 1992, NMFS has requested reinitiation of formal consultation for winter run salmon. Due to these recent biological opinions, a report is being prepared to address the next increment of critical sites within second phase. Completion of the report is currently scheduled for March 1997. A more comprehensive evaluation (General Reevaluation Report) of bank protection design alternatives including potential use of setback levees to minimize environmental impacts and the project cost estimate is currently being prepared.

After the February 1986 flood, the Sacramento River System experienced below normal precipitation and flood flows. This led to a lower rate of erosion and a lowered need for expedited bank protection work. However, the storms of January and March 1995 have caused erosion damage and the urgency for bank protection has increased.

The California Reclamation Board, by letter dated 11 May 1984, requested initiation of a third phase of bank protection.

OTHER INFORMATION (Continued)

The Board reiterated the critical need for a third phase by letter of 1 September 1988 and stated its willingness and ability to cost-share this phase of the project in accordance with the provisions of the Water Resources Development Act of 1986. Congressional authorization is required to extend the limits of bank protection beyond the current 835,000 lineal feet. Pending completion of Supplemental Design Memorandum No. 7 and General Reevaluation Report with approvals to proceed with more comprehensive evaluations of design alternatives, potential proposals for Third Phase bank protection are unscheduled.

The scope of Supplemental Design Memorandum No. 7 has been revised to address the next critical sites within second phase to maintain the integrity of the Sacramento River Flood Control Project against erosion damage.

Several sites along the Lower American River within the confines of the Sacramento River Bank Protection Project require bank protection to avoid undermining levees and flood protection in the Sacramento Metropolitan Area. Repair of these sites is the basis for the pre-project condition of the American River Investigation. These sites, totaling approximately 20,000 lineal feet, have been included as part of separable element 42. The contracts are being identified as LAR 1 and LAR 2 with associated mitigation. The current cost estimate for this work is $21,778,000, approximately $1,000 per lineal foot. Final design for the Supplemental Design Memorandum No. 8, is scheduled for completion in July 1996. Due to budget priorities and constraints, LAR 1 is being divided into three parts, LAR 1A, LAR 1B, and LAR 1C.

The project has an unprogrammed balance including funds for recreation and separable element 43 pending the outcome of Supplemental Design Memorandum No. 7 and a General Reevaluation Report for the remainder of second phase.

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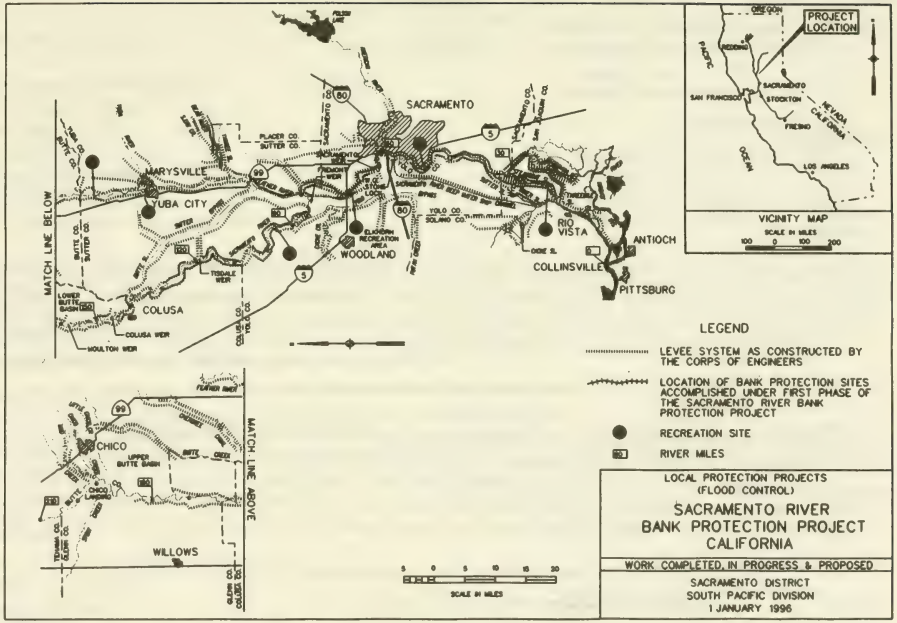

PROJECT LOCATION
OREGON
PACIFIC
REDDING
SACRAMENTO
SAN FRANCISCO
STOCKTON
NEVADA
CALIFORNIA
FRESNO
OCEAN
LOS ANGELES
VICINITY MAP
SCALE IN MILES
100 0 100 200
SACRAMENTO
PLACER CO.
SUTTER CO.
MARYSVILLE
YUBA CITY
MATCH LINE BELOW
BUTTE CO.
SUTTER CO.
LOWER BUTTE BASIN
COLUSA
COLUSA WEIR
MOULTON WEIR
TISDALE WEIR
COLUSA CO.
YOLO CO.
ELKHORN RECREATION AREA
WOODLAND
YOLO CO.
SOLANO CO.
RIO VISTA
ANTIOCH
COLLINSVILLE
PITTSBURG
CHICO
UPPER BUTTE BASIN
BUTTE CREEK
CHICO LANDING
WILLOWS
GLENN CO.
COLUSA CO.
MATCH LINE ABOVE
LEGEND
LEVEE SYSTEM AS CONSTRUCTED BY THE CORPS OF ENGINEERS
LOCATION OF BANK PROTECTION SITES ACCOMPLISHED UNDER FIRST PHASE OF THE SACRAMENTO RIVER BANK PROTECTION PROJECT
RECREATION SITE
RIVER MILES
5 0 5 10 15 20
SCALE IN MILES
LOCAL PROTECTION PROJECTS
(FLOOD CONTROL)
SACRAMENTO RIVER
BANK PROTECTION PROJECT
CALIFORNIA
WORK COMPLETED, IN PROGRESS & PROPOSED
SACRAMENTO DISTRICT
SOUTH PACIFIC DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Sacramento River Flood Control Project, Glenn-Colusa Irrigation District, CA (Continuing)

LOCATION: The project is located between Sacramento River Mile 202 and 206 near the Glenn-Tehama county line. It is about 100 miles north of Sacramento, California.

DESCRIPTION: Since 1970, flood flows in the Sacramento River have altered the river channel and degraded the river bottom. Changing conditions cause significant adverse impacts to river stability, water supply and anadromous fishery resources in the area. The proposed plan for a gradient restoration facility (GRF) includes use of multiple sheet piles coupled with stone to replicate a natural riffle in the river to restore river hydraulic gradient to pre-1970 conditions, and bank protection in the vicinity of the Glenn-Colusa Irrigation District (GCID) water intake facility. Concurrently, GCID and the State of California are designing a projsct to upgrade existing fish screens or build new screens near GCID pumping facilities. Although the Corps is not participating financially in the fish screen project, design of Corps' GRF will be compatible with GCID/State fish screen proposals.

AUTHORIZATION: Flood Control Act of 1917 and Energy and Water Development Appropriation Act of 1990

REMAINING BENEFIT-REMAINING COST RATIO: (See Other Information)

TOTAL BENEFIT-COST RATIO: (See Other Information)

INITIAL BENEFIT-COST RATIO: (See Other Information)

BASIS OF BENEFIT-COST RATIO: (See Other Information)

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$10,650,000
Estimated Non-Federal Cost		3,550,000
Cash Contribution	$3,100,000	
Other Costs	450,000	
Total Estimated Project Cost		$14,200,000

STATUS (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	Not Started	Being Determined

PHYSICAL DATA

Gradient Restoration Sheet piling	Up to 5' depth

Division: South Pacific District: Sacramento

Sacramento River Flood Control Project (Glenn-Colusa Irrigation District), California

SUMMARIZED FINANCIAL DATA (Cont'd)

		ACCUM. PCT. OF EST. FED COST
Allocations to 30 September 1995	$ 2,593,000	
Conference Allowance for FY 1996	300,000	
Allocation for FY 1996	300,000	
Allocation through FY 1996	2,893,000	27
Allocation Requested for FY 1997	2,000,000	46
Programmed Balance to Complete after FY 1997	0	
Unprogrammed Balance to Complete after FY 1997	5,757,000	

JUSTIFICATION: The flood of 1969-1970 caused changes in the alignment of the Sacramento River. A cutoff occurred in 1970 at River Mile 205. This cutoff reduced the length of the flows in the river from two miles to approximately 1,400 feet. This resulted in subsequent scouring and erosion of the river channel. Flood flows since that time have caused the continued periodic degradation of the river gradient. The elevation of the main river channel at the mouth of the diversion channel to the Glenn-Colusa Irrigation District's pumps have been reduced about 3 feet. Lower water surface on the fish screens has resulted in losses to the anadromous fishery population. The most significant losses have occurred to the endangered winter-run salmon.

FISCAL YEAR 1997: The requested amount of $2,000,000 will be used as follows:

Planning, Engineering and Design	$ 500,000
Programmed Carryover for Construction Contract Award	1,500,000
Total	$2,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Requirements of Local Cooperation		
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	$ 430,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project.	20,000	
Pay 5 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	3,100,000	$ 1/
Total Non-Federal Costs	$ 3,550,000	$

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

1/ To be determined in the final Design Memorandum.

STATUS OF LOCAL COOPERATION: Both the Glenn-Colusa Irrigation District and the State of California Reclamation Board have stated their intent to cost-share the project. A Project Cooperation Agreement will be executed prior to initiation of construction.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $ 10,650,000 is the initial estimate presented to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A combined Environmental Impact Statement/ Environmental Impact Report (EIS/EIR) meeting criteria of the National Environmental Policy Act and California Environmental Quality Act, respectively, is currently being prepared by the State of California with the Bureau of Reclamation as the lead Federal agency. The EIS/EIR will address impacts of the fish screens and the GRF. The draft EIS/EIR is scheduled to be completed in September 1996.

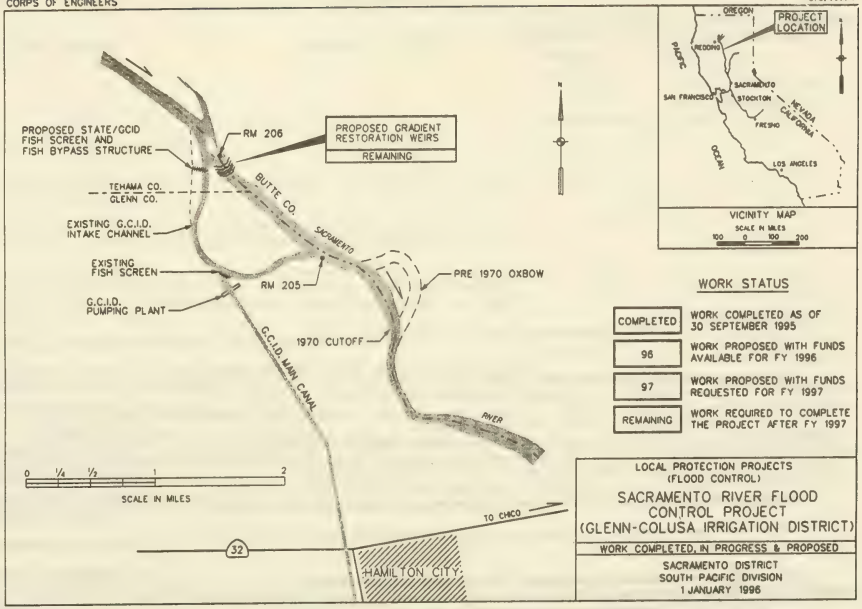
OTHER INFORMATION: Funds to initiate preconstruction engineering and design (PED) were appropriated in FY 1990.

Congressional reauthorization of the GRF is required because the current cost estimate exceeds the Water Resources Development Act of 1986 Section 902 limit. The GRF project was authorized by the FY 90 Energy and Water Development Appropriations Act at $6.0 million based on a local report prepared jointly by California Department of Fish and Game (DFG) and GCID. The estimate was for only construction. The estimate excluded PED, lands costs, and features for boat passage and fish migration. The Corps prepared a 30 percent design using a chute design concept. The final design is expected to include similar construction components. The 30 percent design was not officially approved, but is considered representative of a probable final design of the GRF. The 30 percent chute design cost estimate was $14.2 million in 1993 dollars. The Corps is preparing a draft Design Memorandum, scheduled for completion in June 1996, which will update the project cost estimate. A request for reauthorization (Post Authorization Change) document will be included with the final Design Memorandum scheduled for submittal in March 1997.

Benefit-Cost information is currently being developed as part of the final Design Memorandum.

CORPS OF ENGINEERS

U.S. ARMY



APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: San Lorenzo River, California (New)

LOCATION: The project is located within the city limits of Santa Cruz, California, about 70 miles south of San Francisco.

DESCRIPTION: The recommended project, which will provide 70-year level of protection (equivalent to FEMA 100-year), includes precast-concrete-block and concrete-capped sheetpile floodwalls on top of various portions of the San Lorenzo River levees, bridge modifications to increase flow capacity at the Soquel Avenue and Water Street bridges, levee toe-drains to provide increased stability under conditions of high hydrostatic head, a controlled overflow section in the levee and floodwall system lined with riprap to minimize sudden overtopping, channel dredging, floodproofing, and a flood warning system.

AUTHORIZATION: Currently unauthorized. Chief's Report was submitted in June 1994.

REMAINING BENEFIT-REMAINING COST RATIO: 1.5 to 1 at 7-3/4 percent.

TOTAL BENEFIT-COST RATIO: 1.3 to 1 at 7-3/4 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation contained in the Chief's Report dated 30 June 1994, at October 1993 price levels.

SUMMARIZED FINANCIAL DATA			STATUS (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$ 9,030,000	Entire Project	Not Started	Being Determined
Estimated Non-Federal Cost		$ 8,770,000			
Cash Contribution	$ 950,000				
Other Costs	9,100,000				
Reimbursements/Credits (50/50)	-1,280,000				
Total Estimated Project Cost		$17,800,000			

PHYSICAL DATA

Floodwalls: Approx. 13,000 lineal feet, ranging from 1.0 to 4.5 ft. in height
Dredging: 65,000 c.y. initially; avg. annual maintenance dredging of 10,000 c.y.
Overflow Section: 1,200 lineal feet

23-577 96 - 52

Bridge Raising/Replacement: Soquel Avenue Bridge: raise 450-foot bridge 3 feet, replace older sections. Water Street Bridge: Remove and replace the upstream half of bridge (300 ft.)

SUMMARIZED FINANCIAL DATA (Continued)		ACCUM. PCT. OF EST. FED COST
Allocations to 30 September 1995	$ 770,000	
Conference Allowance for FY 1996	100,000	
Allocation for FY 1996	74,000 1/	
Allocations through FY 1996	844,000	9
Allocation Requested for FY 1997	200,000	12
Programmed Balance to Complete after FY 1997	7,986,000	
Unprogrammed Balance to Complete after FY 1997	0	

1/ Reflects $26,000 reduction assigned as savings and slippage.

JUSTIFICATION: The project is necessary for flood protection of the city of Santa Cruz, a highly developed business, industrial and residential area with a January 1995 population of 52,000 in a densely populated county (approximately 520 persons per square mile). The city of Santa Cruz serves as the county seat, and is the center for providing important governmental, employment, educational and cultural services throughout the county. It is the site of the University of California which is expected to contribute significantly to the city's expected growth. The San Lorenzo drainage basin encompasses a 134-square-mile area in Santa Cruz County. The maximum flood of record occurred in 1955 which inundated 410 acres and caused damages of approximately $7.6 million. Those same damages at 1995 prices would be in excess of $53 million. A flood control project, including levee and channel improvements, was constructed and completed in 1959 by the Corps of Engineers. Since that time, excessive sediment deposition in the streambed has reduced the carrying capacity of the existing flood control project to about a 30-year event as compared to the design capacity of about a 150-year event. This reduction in channel capacity is the main reason that the water surface of the flood event of January 1982 came within three to four feet of overtopping the levees. It was estimated to be approximately a 25-year flood event. Average annual benefits, all flood control, are estimated at $2.3 million at October 1995 price levels.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Planning, Engineering and Design,	$200,000
Total	$200,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	$ 1,966,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	7,134,000	
Pay 5 percent of the costs allocated to flood control, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	870,000	340,000
Pay 25 percent of the costs associated with nonstructural flood control measures included in the project.	80,000	
Federal reimbursement to non-Federal sponsor for one-half of the non-Federal costs allocated to flood control in excess of Federal costs.	-1,280,000	
Total Non-Federal Costs	$ 8,770,000	

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction. Communities must agree to adopt additional flood plain management activities beyond the requirement to participate in

NON-FEDERAL COST (Continued)

the National Flood Insurance Program to qualify for Federal participation in a structural flood damage reduction project. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of storm water runoff, and preservation of open space.

STATUS OF LOCAL COOPERATION:

The City of Santa Cruz Redevelopment Agency, by letter dated 21 January 1994, stated their intent to continue to act as the non-Federal sponsor for this project. Funding to meet local cooperation requirements has been secured.

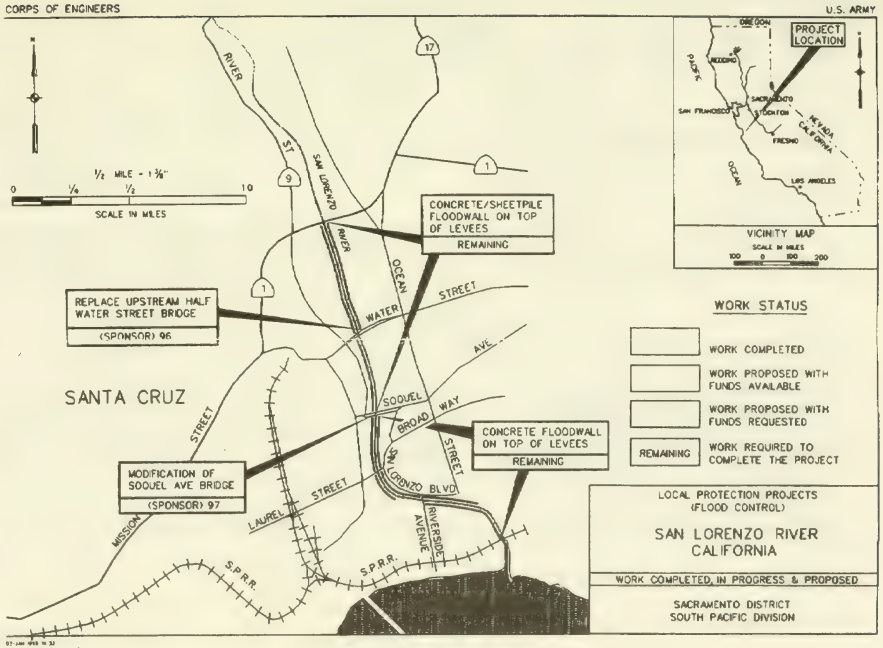
In accordance with the Water Resources Development Act of 1986, the non-Federal share shall not exceed 50 percent of the cost of the project assigned to flood control. For this project, the costs of LERRD's exceed 50 percent of the total project cost. A reimbursement will be made to the non-Federal sponsor upon completion of the project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $9,030,000 is the initial estimate to be submitted to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment/Finding of No Significant Impact (EA/FONSI) was signed on 15 February 1994.

OTHER INFORMATION: Preconstruction engineering and design was initiated in FY 1994.

The flood control project provides the opportunity to implement a habitat restoration project under the authority of the Water Resources Development Act of 1986, Section 1135. The draft project modification report for a potential restoration project is scheduled to be completed in March 1996.


CORPS OF ENGINEERS
U.S. ARMY
1/2 MILE - 1 3/16"
0
1/4
1/2
1.0
SCALE IN MILES
SANTA CRUZ
REPLACE UPSTREAM HALF WATER STREET BRIDGE
(SPONSOR) 96
MODIFICATION OF SOQUEL AVE BRIDGE
(SPONSOR) 97
CONCRETE/SHEETPILE FLOODWALL ON TOP OF LEVEES
REMAINING
CONCRETE FLOODWALL ON TOP OF LEVEES
REMAINING
SAN LORENZO RIVER
OCEAN
WATER STREET
SOQUEL AVE.
BROAD WAY
SAN LORENZO BLVD
RIVERSIDE AVENUE
LAUREL STREET
MISSION STREET
S.P.R.R.
PROJECT LOCATION
OREGON
PACIFIC
REDDING
SACRAMENTO
SAN FRANCISCO
STOCKTON
FRESNO
NEVADA
CALIFORNIA
OCEAN
LOS ANGELES
VICINITY MAP
SCALE IN MILES
100 0 100 200
WORK STATUS
WORK COMPLETED
WORK PROPOSED WITH FUNDS AVAILABLE
WORK PROPOSED WITH FUNDS REQUESTED
REMAINING
WORK REQUIRED TO COMPLETE THE PROJECT
LOCAL PROTECTION PROJECTS (FLOOD CONTROL)
SAN LORENZO RIVER
CALIFORNIA
WORK COMPLETED, IN PROGRESS & PROPOSED
SACRAMENTO DISTRICT
SOUTH PACIFIC DIVISION

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Santa Ana River Mainstem, California (Continuing)

LOCATION: The project is located along a 75-mile reach of the Santa Ana River in Orange, Riverside, and San Bernardino Counties southeast of and adjacent to metropolitan Los Angeles, California.

DESCRIPTION: The plan of improvement provides for construction of the Seven Oaks Dam about 35 miles upstream of the existing Prado Dam, with a gross reservoir storage of 145,600 acre feet; flood plain management of the flood overflow area on the Santa Ana River between Seven Oaks Dam and the existing Prado Reservoir; enlargement of Prado Dam to increase the reservoir storage capacity from 217,000 acre-feet to 362,000 acre-feet; construction of 3.3 miles of channel modifications along Oak Street Drain in Corona; enlargement of the existing 2.4 miles of Mill Creek levee; construction of a detention basin and 2.0 miles of channel modifications along the Santiago Creek; and various means of flood control, including flood plain management, levees, and vertical walled concrete channels along the 30.5 miles of the Santa Ana River from Prado Dam to the Pacific Ocean. In addition, the plan includes recreational development and purchase of lands for mitigation and preservation of endangered species. A project for San Timoteo Creek was added to the Santa Ana River Mainstem project by the Energy and Water Development Appropriation Act of 1988. A special report was approved in May 1994; engineering and design was initiated in Fiscal Year 1991 with funds appropriated for that purpose and was completed in June 1994. Construction was initiated in Fiscal Year 1994. The project was modified by the Water Resources Development Act of 1990 which authorized the Secretary to develop recreational trails and facilities on lands between Seven Oaks Dam and Prado Dam, including flood plain management areas. These recreational features are not included in the current estimate pending development of plans and determination of costs.

AUTHORIZATION: Water Resources Development Act of 1986, Energy and Water Development Appropriation Act, 1988 and Water Resources Development Act of 1990.

REMAINING BENEFIT-REMAINING COST RATIO: 2.4 to 1 at 8-5/8 percent.

TOTAL BENEFIT-COST RATIO: 1.4 to 1 at 8-5/8 percent.

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 8-5/8 percent (FY 1990).

BASIS OF BENEFIT-COST RATIO: The benefit-cost ratio is based on the Phase II General Design Memorandum dated August 1988 at 1987 price levels.

SUMMARIZED FINANCIAL DATA			ACCUMULATED PCT OF EST FED COST	STATUS (1 JAN 1995)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$ 778,000,000		Seven Oaks Dam	37	Being Determined
Programmed Construction	$623,310,000			Prado Dam	0	Unprogrammed
Unprogrammed Construction	154,690,000			Santiago Creek	0	Being Determined
				Mill Creek	100	
Estimated Non-Federal		555,000,000		Oak Street Drain	100	
Programmed Construction	$248,672,000			Lower Santa Ana River Channel	62	Being Determined
Cash Contributions	$ 49,388,000			Recreation	0	Being Determined
Other Costs	199,284,000			San Timoteo Creek	5	Unprogrammed
Estimated Non-Federal Unprogrammed Construction	$306,328,000			Entire Project	37	Indefinite
Cash Contributions	$ 18,612,000					
Other Costs	287,716,000					
Total Estimated Programmed Construction Cost		$1,159,698,000				
Total Estimated Unprogrammed Construction Cost		173,302,000				
Total Estimated Project Cost		$1,333,000,000				
Allocations to 30 September 1995		$382,406,000				
Conference Allowance for FY 1996		70,249,000				
Allocation for FY 1996		62,708,000 1/				
Allocations Through FY 1996		445,114,000	58			
Allocation Requested for FY 1997		51,020,000	64			
Programmed Balance to Complete After FY 1997		127,176,000				
Unprogrammed Balance to Complete After FY 1997		154,690,000				

1/ Reflects $5,411,000 reduction assigned as savings & slippage and revocation of $2,130,000 per HQ directive to provide funds to Flood Control and Coastal Emergencies.

1637

PHYSICAL DATA

SEVEN OAKS DAM:
Dam: Type - Impervious core
Height - 550 feet
Length - Crest Length 2,980 feet
Outlet Works: Gated conduit, 8,000 cfs maximum discharge
Basin Capacity: 145,600 acre-feet
Spillway: Type - Detached overflow, 500 ft wide, unlined
Embankment: Earth and Rockfill
Lands & Damages: Acres - 2,736 existing streambed and undeveloped (mountainous)

MILL CREEK:
Levee repair: Type - Grouted riprap
Height - 10 feet maximum
Length - 12,500 feet (2.4 miles) of existing
13,600 feet (2.6 miles)

Floodwall (Top of levee): Type - Concrete
Height - 7.5 feet maximum
Length - 12,600 feet (2.4 miles)

OAK STREET DRAIN:
Channel: Rectangular concrete 3.0 mile
Trapezoidal riprap 0.3 mile
Lands & Damages: 34 acres for rights-of-way

SANTIAGO CREEK:
Channel: Rectangular concrete 500 feet
Trapezoidal riprap 2.0 miles
Reservoir: Buttressed
Basin Capacity: Flood control 4,620 acre feet (el. 274 to 298)
Lands and Damages: 281.5 acres, reservoir and channel

PRADO DAM:
Dam: Type - Impervious core
Height - 134 feet
Length - 3,050 crest length
Embankment: Rolled earthfill
Spillway: Type - Detached, overflow concrete, 1,000 feet wide, 578,000 cfs maximum design discharge.
Basin Capacity: 362,000 acre-feet
Lands & Damages: Acres - 1,661 grazing, wildlife

LOWER SANTA ANA RIVER:
Channel: - 200-450 feet wide, 34 bridges replaced or modified
- 5.0 miles trapezoidal concrete
- 2.4 miles rectangular concrete
- 15.5 miles trapezoidal grouted riprap
- 0.8 miles rectangular concrete/soft bottom

Lands & Damages: Acres - 2,429.5 for channel (7.4 miles floodway)
Mitigation Lands: Acres - 92 marsh restoration

RECREATION FACILITIES:
LOWER SANTA ANA RIVER: Bicycle/equestrian trail - 32 miles
SANTIAGO CREEK: Trails - Bicycle and equestrian (1 mile)
Rest stop - Concrete wheel stop
SEVEN OAKS TO PRADO DAM: To be developed

SAN TIMOTEO CREEK:
Channel: 5.4 miles trapezoidal concrete
Basins: 6 in-channel and transition chute
Lands & Damages: 60.3 acres for rights-of-way

JUSTIFICATION: Construction of this project will primarily provide protection to lands and improvements within Orange County downstream of Prado Reservoir. A severe flood threat exists in this area, which could cause damages in excess of $15 billion and could endanger and disrupt the lives of over three million people living or working in the floodplain. Damages upstream of Prado Reservoir could exceed $450 million. The overflow area comprises 160 square miles of primarily urban development in 15 cities including San Bernardino, Riverside, Anaheim, Orange, Santa Ana, Fountain Valley, Costa Mesa, Huntington and Newport Beach. The greatest potential damage area is the Orange County floodplain below Prado Dam. The flood of 1938 is the largest that has been recorded since accurate stream gages were placed in the basin. With a peak flow at Riverside Narrows of approximately 100,000 cubic feet per second, the flood covered thousands of acres of then predominantly rural Orange County. Although the area was largely agricultural at the time, the flood caused $4 million in damages ($95 million at 1994 prices). Following this storm, Prado Dam was constructed at the head of the Santa Ana Canyon, providing effective control of floods for much of the downstream basin. In 1969, when communities upstream of Prado Dam suffered $85 million in damages, Prado Dam prevented an estimated $525 million in damages to downstream communities. With current development, damages for a similar flood would be approximately $2.7 billion. Without the project, the level of protection downstream of Prado, primarily in Orange County, is approximately 70 years. With the project, the level of protection downstream of Prado would be increased to 190 years. Average annual benefits, based on October 1987 price levels are as follows:

Annual Benefits	Amount
Flood Damage Prevention	$135,978,000
Recreation	282,000
Total	$136,260,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate outlet (final-gate) contract Seven Oaks	$ 4,831,000
Continue embankment/spillway construction at Seven Oaks Dam	34,176,000
Complete road construction contract at Seven Oaks	713,000
Complete Reach 7 contract on Lower Santa Ana	2,000,000
Complete Reach 2, 3, 4 landscaping contract, Lower Santa Ana	1,200,000
Complete marsh planning contract, Lower Santa Ana	300,000
Planning, Engineering, and Design	3,000,000
Construction Management	4,800,000
Total	$51,020,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsors must comply with the following requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Santa Ana River Mainstem:		
Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas.	$ 416,095,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	67,505,000	
Pay 5 percent of total project costs allocated to flood control, and bear all cost of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	58,054,000	$1,373,000
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, repair, rehabilitation and replacement of recreation facilities.	846,000	6,000

1640

NON-FEDERAL COSTS (Continued)

Requirements of Local Cooperation San Timoteo Creek:	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas.	527,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	2,873,000	
Pay 15 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all cost of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	9,100,000	972,000
Total Non-Federal Costs	$555,000,000	$2,351,000

The non-Federal sponsors have also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: Orange, San Bernardino, and Riverside Counties are the local sponsors. In accordance with Memorandum of Agreement executed on 6 December 1987, Orange County contributed $3 million to assure the project design schedule was maintained. Orange County will receive credit for those funds towards their share of the project costs during construction. In addition, Orange County worked with California Department of Transportation (CALTRANS) to relocate some key bridges in Fiscal Year 1988, in advance of project construction. On 14 December 1989, the Local Cooperation Agreement was executed in compliance with the requirements of the Water Resources Development Act of 1986. A supplemental Local Cooperation Agreement was executed on 1 July 1994 for San Timoteo Creek. A draft Local Cost-sharing Agreement for recreation on Santiago Creek has been reviewed and approved by the local sponsor, Orange County, and the Orange County Department of Harbors, Beaches and Parks. This draft agreement was forwarded to HQUSACE in December 1991 and returned in June 1992 with comments. Subsequently, this work was rescheduled to Fiscal Year 2000. A Project Cost Sharing Agreement will be executed prior to construction.

STATUS OF LOCAL COOPERATION (Continued)

The current non-Federal cost estimate of $555,000,000, which includes a cash contribution of $68,000,000, is an increase of $104,000,000 over the non-Federal cost estimate of $451,000,000 noted in the Local Cooperation Agreement, which included a cash contribution of $68,000,000. Our analysis of the non-Federal sponsors' financial capability to participate in the project affirms that Riverside County still has a reasonable and implementable plan for meeting their financial commitments. However, due to Orange County filing Chapter 9 bankruptcy in December 1994, Prado Dam construction is currently unprogrammed. Sufficient funds for ongoing FY 1996 construction have been deposited into the escrow account by Orange County. Also, San Bernardino County is having problems meeting their financial obligation for San Timoteo Creek. (See OTHER INFORMATION.)

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $778,000,000 is the same as the latest estimate presented to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with Environmental Protection Agency in June 1989.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1979, and funds to initiate construction were appropriated in FY 1990.

Through negotiations with Fish and Wildlife Service on Section 7 consultations for endangered species (Eriastrum below Seven Oaks and least Bell's vireo at Prado Dam), agreement was reached on the number of acres for mitigation. The final biological opinion necessary for formal conclusion of the consultation was received from Fish and Wildlife Service 22 June 1989.

Coordination with the U.S. Fish and Wildlife Service and the California Department of Fish and Game was initiated early in the planning of alternatives and completed 30 March 1989. The coordination produced a Fish and Wildlife Service Coordination Act Report that was included in the Environmental Impact Statement. Numerous coordination meetings were held, and these agencies had a role in the determination of project associated impacts as well as mitigation needs and opportunities.

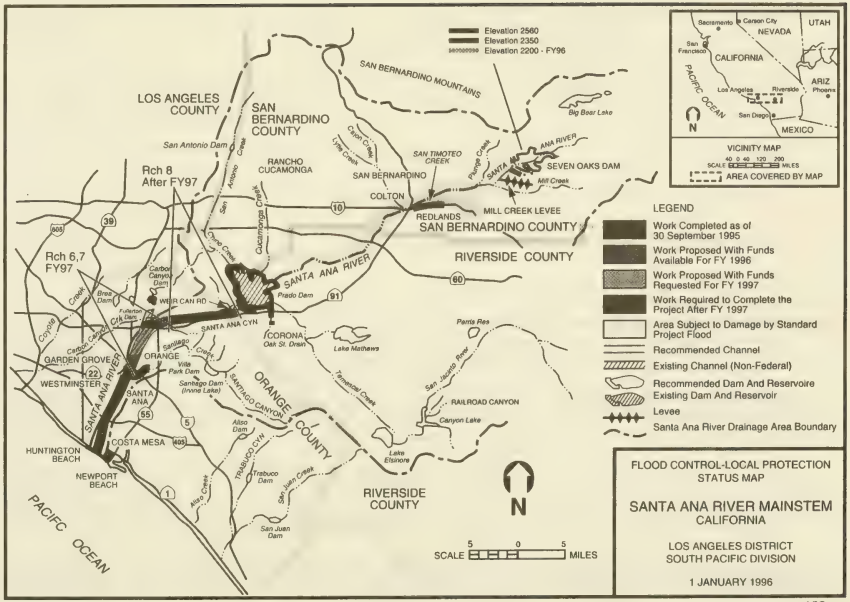
1642

OTHER INFORMATION (Continued)

An agreement was signed on 21 September 1989, in accordance with Section 215 of the Flood Control Act of 1968, to permit Orange County to undertake early partial construction of the Santiago Creek improvements in conjunction with other improvements they are planning for water supply, and to be credited for applicable project construction.

Section 104 of the Energy and Water Development Appropriation Act of 1988 authorized."...San Timoteo Creek in the vicinity of Loma Linda for construction as part of the Santa Ana River Mainstem including Santiago Creek Project... the benefits and costs of the San Timoteo project shall be included together with the benefits and costs of the Santa Ana Mainstem including Santiago Creek" at a total cost of $25,000,000. A special report was approved in May 1994; engineering and design was initiated in Fiscal Year 1991 with funds appropriated for that purpose. Engineering and design was completed in June 1994. Construction was initiated in August 1994 with a portion of the $12,000,000 added for that purpose in FY 1994. An additional $5,000,000 was included in Act Language for Fiscal Year 1995 and FY 1996 which was to be used to award and complete a contract for Reach 2 in August 1995. However, all construction for Reach 2 and Reach 3 on San Timoteo is postponed indefinitely until the sponsor establishes an assessment district to provide funding for the project.

The project was modified by the Water Resources Development Act of 1990 which authorized the Secretary to develop recreational trails and facilities on lands between Seven Oaks Dam and Prado Dam, including flood plain management areas. These features are not included in the current estimate pending development of plans and determination of costs.


Elevation 2560
Elevation 2350
Elevation 2200 - FY96
SAN BERNARDINO MOUNTAINS
LOS ANGELES COUNTY
SAN BERNARDINO COUNTY
RANCHO CUCAMONGA
SAN BERNARDINO
COLTON
REDLANDS
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
SEVEN OAKS DAM
MILL CREEK LEVEE
SAN TIMOTEO CREEK
Big Bear Lake
SANTA ANA RIVER
San Antonio Dam
Rch 8
After FY97
Rch 6,7
FY97
Carbon Canyon Dam
Prado Dam
WEIR CAN RD
SANTA ANA CYN
CORONA
Oak St. Drain
Lake Mathews
Prado Res
GARDEN GROVE
WESTMINSTER
ORANGE
Villa Park Dam
Santiago Dam (Irvine Lake)
SANTA ANA
COSTA MESA
HUNTINGTON BEACH
NEWPORT BEACH
PACIFIC OCEAN
ORANGE COUNTY
SANTIAGO CANYON
TRABUCO CYN
Trabuco Dam
San Juan Dam
Aliso Dam
Aliso Creek
San Juan Creek
Temescal Creek
San Jacinto River
RAILROAD CANYON
Canyon Lake
Lake Elsinore
RIVERSIDE COUNTY
SCALE 5 0 5 MILES
N
Sacramento
Carson City
UTAH
NEVADA
San Francisco
CALIFORNIA
ARIZ
Phoenix
Los Angeles
Riverside
San Diego
MEXICO
VICINITY MAP
40 0 40 120 200
SCALE MILES
AREA COVERED BY MAP
LEGEND
Work Completed as of 30 September 1995
Work Proposed With Funds Available For FY 1996
Work Proposed With Funds Requested For FY 1997
Work Required to Complete the Project After FY 1997
Area Subject to Damage by Standard Project Flood
Recommended Channel
Existing Channel (Non-Federal)
Recommended Dam And Reservoire
Existing Dam And Reservoir
Levee
Santa Ana River Drainage Area Boundary
FLOOD CONTROL-LOCAL PROTECTION STATUS MAP
SANTA ANA RIVER MAINSTEM
CALIFORNIA
LOS ANGELES DISTRICT
SOUTH PACIFIC DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Santa Paula Creek, California (Resumption)

LOCATION: Santa Paula Creek is a tributary of the Santa Clara River in the vicinity of the city of Santa Paula, Ventura County, and is located approximately 60 miles northwest of Los Angeles.

DESCRIPTION: The project, as originally proposed, consisted of construction of 3.7 miles of concrete channel and a debris basin located in the vicinity of Steckel Park, on Santa Paula Creek, and construction of 0.6 mile of channel and a debris basin on Mud Creek. Current project includes removal of the existing Phase I channel and replacement with a trapezoidal channel of natural bottom and grouted-stone sideslopes, extending to the upstream project limits, 1.65 miles; construction of a grouted stone inlet and fish ladder; and modification of a railroad bridge. The project will require some mitigation. A new project authorization will not be required.

AUTHORIZATION: Flood Control Act of 1948 and Water Resources Development Act of 1992.

REMAINING BENEFIT - REMAINING COST RATIO: 2.2 to 1 at 3-1/4 percent.

TOTAL BENEFIT-COST RATIO: 1.6 to 1 at 3-1/4 percent.

INITIAL BENEFIT-COST RATIO: 1.8 to 1 at 3-1/4 percent.

BASIS OF BENEFIT-COST RATIO: The benefits are based on General Reevaluation Report on Santa Paula Creek, California, dated June 1995.

SUMMARIZED FINANCIAL DATA			ACCUMULATED PCT OF EST FED COST	STATUS (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$20,300,000		Entire Project	12	Being Determined
Estimated Non-Federal Cost		1,600,000				
Cash Contributions	$ 0					
Other Costs	1,600,000					
Total Estimated Project Cost		$21,900,000				
Allocations to 30 September 1995		$ 8,497,000				
Conference Allowance for FY 1996		2,300,000				
Allocation for FY 1996		2,109,000 1/				
Allocations through FY 1996		10,606,000	52			

PHYSICAL DATA

Channels:
Trapezoidal Grouted Stone Channel with Natural Bottom, 1.65 miles, Top Width 150 to 250 Feet
Grouted Stone Inlet and Fish Ladder
Bridge: Modification of Railroad Bridge

1/ Reflects $191,000 reduction assigned as savings and slippage.

Division: South Pacific District: Los Angeles Santa Paula Creek, California

1645

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUMULATED PCT OF EST FED COST
Allocation Requested for FY 1997	4,200,000	73
Programmed Balance to Complete after FY 1997	5,494,000	
Unprogrammed Balance to Complete after FY 1997	0	

JUSTIFICATION: Construction of the authorized plan would provide protection to a large portion of the main business and residential districts of the city of Santa Paula and immediate adjacent area from severe flooding along Santa Paula Creek. The January 1990 population of Santa Paula was 24,016, and Ventura County, 668,553. Santa Paula is a trade center for a region which is devoted primarily to citrus fruit and avocado production, but which also contains other industries such as crude oil production and plastics manufacturing. The value of lands and improvements in the overflow area, consisting of 950 acres, is estimated to be $207,650,000 at October 1995 prices and conditions of development. Floods occur as a result of high intensity rainfall of short duration and cause damage to commercial and residential properties, highways, and railroads. Health has been endangered due to flood damages to the water supply and sanitary systems in the city of Santa Paula. The city is located on an alluvial cone which extends from the mouth of the Santa Paula Canyon to the Santa Clara River. Santa Paula Creek carries a heavy debris load, and its average gradient is 390 feet per mile. It is estimated that under present conditions of development, over $1,000,000 in flood damages would be prevented with the project in full operation. Significant intangible benefits would also result from prevention of possible loss of life and interruption of normal community activities and transportation. Average annual benefits, at October 1994 price levels, are $1,753,000, all flood control.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate construction of upstream channel, fish ladder, and relocation of railroad bridge	$3,519,000
Planning, Engineering, and Design	311,000
Construction Management	370,000
Total	$4,200,000

1646

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Flood Control Acts of 1936 and 1965, the non-Federal sponsor was to comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	$ 854,000	$
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	746,000	
Bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.		63,000
Total Non-Federal Costs	$1,600,000	63,000

STATUS OF LOCAL COOPERATION: A Section 221 Agreement for the authorized project was executed with Ventura County in July 1973, in conformance with Section 221, Flood Control Act of 1970. The State of California officially adopted the project in Chapter 196, Statutes of 1953, and the Water Code 12673. On 22 December 1994, the Assistant Secretary of the Army (CW) concurred that the existing 221 Agreement is still binding and requires no modification prior to construction.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $20,300,000 is an increase of $3,200,000 over the latest estimate ($17,100,000) presented to Congress (FY 1996). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ 348,000
Design Changes	295,000
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	2,857,000
Schedule Change	- 300,000
Total	$ 3,200,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Impact Statement was completed concurrently with the General Reevaluation Report in July 1995.

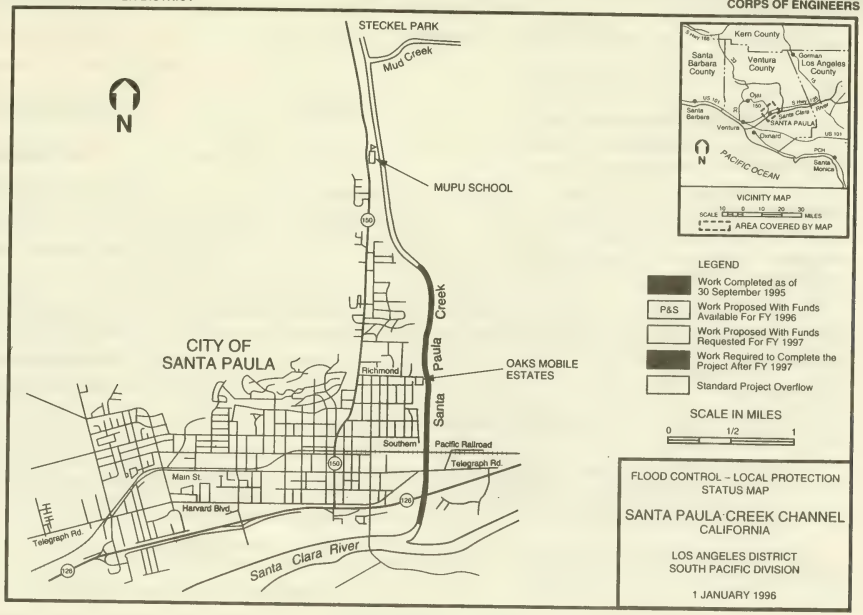
OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1970 and allocated in FY 1971. Construction of the project was initiated in 1973 but was stopped when a complaint was filed by environmental organizations and individuals in August 1973 with the U.S. District Court. Approximately 1,800 feet of concrete channel, at the lower end of the project, was completed in January 1974 at an approximate cost of $1.6 million. The Court hearings ended in June 1974. The project was enjoined in June 1976 for failure to comply with National Environmental Policy Act of 1969.

Subsequent studies indicated the authorized plan and all alternatives investigated were not economically feasible. Post-injunction floods seriously damaged the existing 1,800-foot concrete channel. A 1983 proposal to remove the damaged channel and restore it to pre-project conditions was not supported by the local sponsor. The local sponsor still supports construction of a flood control project.

In 1990, a Plan of Action (POA) was prepared for a General Reevaluation Report (GRR) to address the changed conditions in the project area. The GRR was funded in FY 1991 and will serve as a decision document for determining the appropriate course of action the Corps should pursue for finalizing this project. The GRR, approved by Division Engineers notice of July 1995, proposed a project which includes removal of the existing Phase I channel and replacement with a trapezoidal channel with a natural bottom and grouted side slopes. The project will require some mitigation. A new project authorization will not be required.

Debris due to storms in 1991-1992, 1992-1993 and 1995 caused damages to the existing Phase I channel. The first repair contract was completed in May 1993. A second repair contract was completed February 1994. In January and February 1995, storms caused damages to the existing channel requiring two repair contracts.

1648


STECKEL PARK
Mud Creek
N
MUPU SCHOOL
CITY OF
SANTA PAULA
Santa Paula Creek
Richmond
OAKS MOBILE
ESTATES
Southern Pacific Railroad
Telegraph Rd.
Main St.
Harvard Blvd.
Telegraph Rd.
Santa Clara River
Kern County
Santa Barbara County
Ventura County
Gorman
Los Angeles County
Ojai
Santa Barbara
Ventura
Oxnard
SANTA PAULA
Simi
Santa Clara
PACIFIC OCEAN
Santa Monica
VICINITY MAP
SCALE
MILES
AREA COVERED BY MAP
LEGEND
Work Completed as of 30 September 1995
P&S
Work Proposed With Funds Available For FY 1996
Work Proposed With Funds Requested For FY 1997
Work Required to Complete the Project After FY 1997
Standard Project Overflow
SCALE IN MILES
0
1/2
1
FLOOD CONTROL – LOCAL PROTECTION
STATUS MAP
SANTA PAULA CREEK CHANNEL
CALIFORNIA
LOS ANGELES DISTRICT
SOUTH PACIFIC DIVISION
1 JANUARY 1996

1649

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Upper Sacramento Area Levee Reconstruction, CA (New)

LOCATION: The project is located within the boundaries of the Sacramento River Flood Control System in Colusa County in north-central California. The area includes the upper Sacramento River and its tributaries and the city of Colusa.

DESCRIPTION: An evaluation of about 315 miles of the Sacramento River Flood Control Project levees in the Upper Sacramento area identified about 12 miles of levees that are structurally deficient. The project includes reconstructing about 4 miles of these levees by installing landside berms with toe drains, relocation of ditches, embankment modifications, slurry cut-off walls, the restoration of levee height and developing land for fish and wildlife mitigation.

AUTHORIZATION: Flood Control Acts of 1917, 1928, and 1941; River and Harbor Act of 1937.

REMAINING BENEFIT-REMAINING COST RATIO: 5.8 to 1 at 7 3/4 percent.

TOTAL BENEFIT-COST RATIO: 5.4 to 1 at 7 3/4 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are from the Sacramento River Flood Control System Evaluation - Upper Sacramento Area Initial Appraisal Report (IAR) dated May 1995 and approved in August 1995 at 1994 price levels.

SUMMARIZED FINANCIAL DATA			STATUS (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$2,890,000	Entire Project	Not Started	Being Determined
Estimated Non-Federal Cost		2,850,000	PHYSICAL DATA		
Cash Contribution	$2,080,000		Levee Reconstruction: Colusa Area		
Other Costs	770,000		Length - 3.7 miles		
Total Estimated Project Cost		$5,740,000	Fish and Wildlife Mitigation		

Division: South Pacific District: Sacramento Upper Sacramento Area Levee Reconstruction, California

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED COST		
Allocations to 30 September 1995	$ 945,000 1/		1/	Funding of $945,000 through Fiscal Year 1995 included in the Sacramento River Flood Control Project and reallocated to the Upper Sacramento Area Levee Reconstruction Project.
Conference Allowance for FY 1996	0			
Allocation for FY 1996	205,000 2/			
Allocation through FY 1996	1,150,000	40		
Allocation Requested for FY 1997	300,000	50	2/	Reflects $205,000 reprogrammed to the project.
Balance to Complete After FY 1997	$ 1,440,000			

JUSTIFICATION: Levee evaluation studies of approximately 309 miles of project levees have been completed in Butte, Colusa, Glenn, Sutter, Tehama and Yolo Counties. Results indicate that structural problems caused by ongoing seepage and levee subsidence exist. Reconstruction will be required to maintain the integrity of the existing Sacramento River Flood Control Project and assure the system continues to provide the original design levels of flood protection. The levees were locally constructed and incorporated into the project levee system when it was authorized in 1917. Prior to flood control, the Colusa and Sutter Basins were flooded and acted as storage areas whenever high water occurred. During the floods of 1907 and 1909, the entire Sutter and Colusa Basins were under water. The old town of Colusa is elevated and was not inundated in the 1907 flood but was surrounded by floodwaters. The winter of 1982-83 has been described as California's wettest winter in more than a century and resulted in a disastrous year of flooding. Of California's 58 counties, 45 were declared national disaster areas including six in the Upper Sacramento study area. During the 1986 flood, a number of sites in the Colusa area exhibited seepage, one site had water within one foot of the levee crown and another site had seepage at a levee setback which has been riprapped three times due to erosion. During high flows in January and March 1995, considerable seepage and boils developed on the Sacramento River in Colusa County. If a levee break occurred at the west end of the site, adjacent to the City of Colusa, floodwaters would inundate much of the town, especially newly constructed areas east and south of the old town. The areas protected by the levees comprise over 67,000 acres, mostly agriculture, and about 1,400 structures, primarily residences and farm structures, with a population of about 5,300. Estimated average annual flood damages are $2.6 million. Average annual benefits, all flood control, are estimated at $2,020,000 at October 1994 price levels.

FISCAL YEAR 1997: The requested amount of $300,000 will be applied as follows:

Planning, Engineering and Design	$300,000
Total	$300,000

Division: South Pacific District: Sacramento Upper Sacramento Area Levee Reconstruction, California

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	$ 444,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	326,000	
Pay 37 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 50 percent, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	2,080,000	$ 0 1/
Total Non-Federal Costs	$2,850,000	$ 0

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction. Communities must agree to adopt additional flood plain management activities beyond the requirement to participate in the National Flood Insurance Program to qualify for Federal participation in a structural flood damage reduction project. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of storm water runoff, and preservation of open space.

1/ Reconstruction will reduce, not increase, annual operation and maintenance costs. Operation and maintenance costs are included in the original Sacramento River Flood Control Project and are the responsibility of the non-Federal interests.

STATUS OF LOCAL COOPERATION: The California State Reclamation Board will act as the local sponsor for reconstruction work. A Project Cooperation Agreement is scheduled to be executed in October 2002, prior to initiation of construction.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $2,890,000 is an increase of $550,000 from the latest estimate ($2,340,000) presented to Congress (FY 1996) as part of the Sacramento River Flood Control Project. This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$366,000
Authorized Modifications	$184,000
Total	$550,000

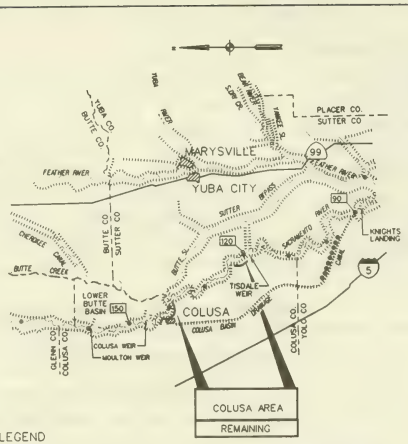
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The original Sacramento River Flood Control Project was substantially complete prior to the National Environmental Policy Act of 1969. An Environmental Impact Statement (EIS) was not prepared. A Programmatic Environmental Impact Statement/Environmental Impact Report (EIS/EIR) on the levee reconstruction for the Mid-Valley Area, Lower Sacramento Area and Upper Sacramento Area, the remaining three phases of the Sacramento River Flood Control System Evaluation, was filed with EPA on 19 June 1992 and the Record of Decision was signed 4 November 1992. The Programmatic EIS/EIR discusses the environmental impacts resulting from potential work for the entire area in general terms. An environmental document on site-specific impacts for recommended work in the Upper Sacramento area will be prepared prior to initiating construction.

OTHER INFORMATION: Following the record high flows of February 1986, Operations and Maintenance funds were provided under Inspection of Completed Works to perform an evaluation of the integrity of the Sacramento River Flood Control System. A five phase program which divided the system into five study areas was developed. In each phase, the structural stability of the levees is examined and a determination made as to whether the system is functioning at its design level. The results of each study phase are submitted as an IAR.

The IAR for the Upper Sacramento Area dated May 1995 was approved in August 1995. Engineering and design was initiated in FY 1996 (Sacramento River Flood Control Project, California). Of the three deficient areas evaluated in the IAR, one is economically feasible based on an incremental analysis. This area includes two sites in the Colusa area at Sacramento River Mile 119.1 to 119.6 right bank and 140.0 to 143.17 right bank. The local sponsor contends that economic justification should be based on a system evaluation which would compare total cost of all required levee reconstruction of the Sacramento River Flood Control Project and total benefits attributable to that work. The rationale is based on the fact that the Operations and Maintenance procedures were formulated for the system to function as a whole.

OTHER INFORMATION (Continued)

Due to budget priorities and constraints, initiation of construction has been delayed to Fiscal Year 2004.



VICINITY MAP

SCALE IN MILES

100 0 100 200

WORK STATUS

- WORK COMPLETED
- WORK PROPOSED WITH FUNDS AVAILABLE
- WORK PROPOSED WITH FUNDS REQUESTED
- REMAINING — WORK REQUIRED TO COMPLETE THE PROJECT

LEGEND

- LEVEE SYSTEM
- LOCATION OF LEVEE RECONSTRUCTION (INCREMENTALLY FEASIBLE)
- LOCATION OF LEVEE RECONSTRUCTION (INCREMENTALLY INFEASIBLE)
- 90 RIVER MILES

ITEM NOT SHOWN

MITIGATION CONTRACT

REMAINING

5 0 5 10 15 20

SCALE IN MILES

LOCAL PROTECTION PROJECTS (FLOOD CONTROL)

UPPER SACRAMENTO AREA LEVEE RECONSTRUCTION CALIFORNIA

WORK COMPLETED, IN PROGRESS & PROPOSED

SACRAMENTO DISTRICT
SOUTH PACIFIC DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: West Sacramento, California (Continuing)

LOCATION: The project is located in West Sacramento, Yolo County in north-central California.

DESCRIPTION: The project consists of raising 4.9 miles of levees up to 5.0 feet along the Sacramento and Yolo Bypasses; constructing concrete wing walls, a concrete sill and a manually operated gate at the Southern Pacific Railroad; constructing a concrete wing wall and flow cut-off wall on each side of Interstate 80; and developing approximately 40 acres of mitigation lands for riparian and upland habitat loss.

AUTHORIZATION: Water Resources Development Act of 1992.

REMAINING BENEFIT - REMAINING COST RATIO: 39.1 to 1 at 8-1/4 percent.

TOTAL BENEFIT-COST RATIO: 14.9 to 1 at 8-1/4 percent.

INITIAL BENEFIT COST RATIO: 14.9 to 1 at 8-1/4 percent (FY 1995).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation contained in the General Design Memorandum for West Sacramento, California, May 1995 at October 1994 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED COST	STATUS (1 JAN 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$15,700,000		Entire Project	Not Started	Being Determined
Estimated Non-Federal Cost		$ 5,200,000				
Cash Contribution	$ 2,400,000					
Other Costs	$ 2,800,000					
Total Estimated Project Cost		$20,900,000				

PHYSICAL DATA

Sacramento Bypass, South Levee
- Length: 1 mile
- Maximum Height Increase: 3.0 feet

Yolo Bypass, East Levee
- Length: 3.9 miles
- Maximum Height Increase: 5.0 feet

Southern Pacific Railroad Flood Gate
- Double swing gate: Approx 5' x 17'

Interstate 80: Wing walls and cut off walls

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED COST
Allocations to 30 September 1995	$2,347,000	
Conference Allowance for FY 1996	7,000,000	
Allocation for FY 1996	2,000,000 1/	
Allocations through FY 1996	4,347,000	28
Allocation Requested for FY 1997	5,700,000	64
Balance to Complete After FY 1997	$5,653,000	

1/ Reflects $580,000 reduction assigned as savings and slippage, and $4,420,000 reprogrammed from the project.

JUSTIFICATION: Construction of this project will provide protection to lands, improvements, and over 30,000 people in West Sacramento. Estimated damageable property in the floodplain is $1.2 billion. Flooding in February 1986, in conjunction with subsequent updated hydrologic analyses, have shown that the existing level of flood protection is significantly less than previously thought and does not provide FEMA 100-year level of protection. Levee failure along the Yolo Bypass would release floodwater from the Sacramento River into the West Sacramento urban area, inundating industrial areas, two major highways, thousands of homes and thousands of acres of farmland. Average annual benefits, all flood control, amount to $27.9 million.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Certification of Non-Federal Lands	$ 20,000
Continue Construction of Levees	4,730,000
Complete Cultural Resources Contract	80,000
Planning, Engineering and Design (Contract Preparations)	290,000
Construction Management	580,000
Total	$5,700,000

1657

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	$ 2,650,000	$
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	150,000	
Pay 13.7 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities.	2,400,000	71,400
Total Non-Federal Costs	$ 5,200,000	$ 71,400

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION:

The California State Reclamation Board will act as the non-Federal sponsor for the project. The Project Cooperation Agreement (PCA) is scheduled to be executed in March 1996.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $15,700,000 is an increase of $500,000 from the latest estimate ($15,200,000) presented to Congress (FY 1996). This change includes the following items.

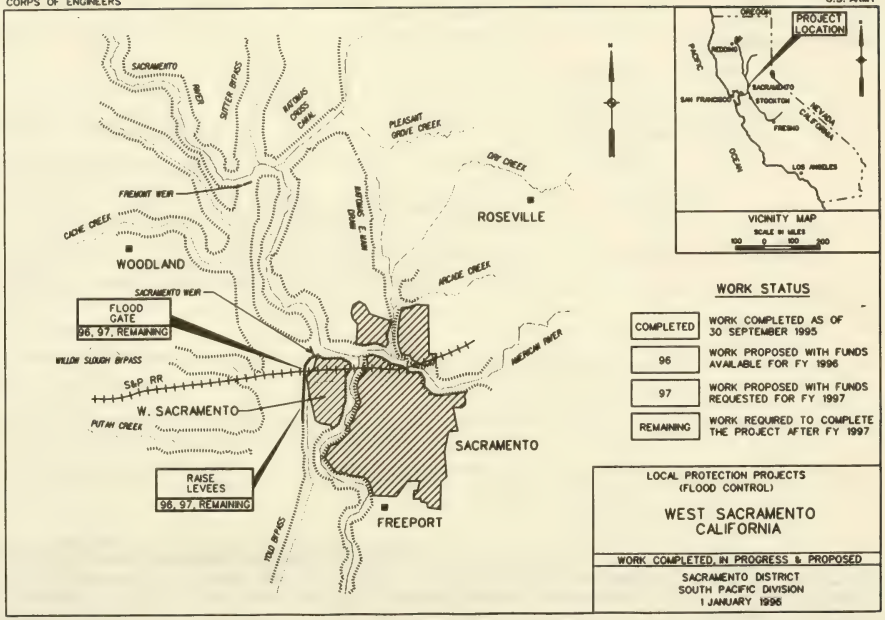
Item	Amount
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	$ 500,000
Total	$ 500,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with EPA in February 1992.

OTHER INFORMATION: Funds were appropriated in FY 1992 to initiate preconstruction engineering and design for the combined American River Watershed and Sacramento Metropolitan studies. The two projects were separated when WRDA 92 authorized the West Sacramento Project (Sacramento Metropolitan) independently of the American River Watershed Project. he fish and wildlife mitigation cost is estimated to be about $3.4 million.

CORPS OF ENGINEERS

U.S. ARMY



APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Tropicana and Flamingo Washes, Nevada (Continuing)

LOCATION: The project area is located west of and through the urbanized Las Vegas area along both Tropicana and Flamingo Washes in southern Nevada. The washes emanate from the surrounding mountains and flow eastward through the developed rural and urban downtown areas to the confluence with Las Vegas Wash.

DESCRIPTION: The recommended plan will provide urban flood reduction, erosion control and wildlife enhancement for portions of Las Vegas and the surrounding areas to the west and southwest, including the rapidly developing alluvial fan immediately west of Las Vegas. The plan recommends construction of four debris basins, two detention basins, modifications to two existing detention basins, 28 miles of channels connecting these project elements, environmental mitigation, and recreation facilities. This system of basins will accept the flows from the primary channels, collect and detain them, and then release them at non-damaging rates of flow from Tropicana Detention Basin. A system of four debris basins will trap large bedloads and prevent erosion damage to the project. Environmental mitigation features include compensation for disturbance to the threatened desert tortoise and other impacted significant terrestrial resources. Recreation facilities will include hiking, bicycle and equestrian trails, and picnic areas around the detention basins.

AUTHORIZATION: Section 101(13) of the Water Resources Development Act of 1992.

REMAINING BENEFIT - REMAINING COST RATIO: 1.5 to 1 at 8-1/2 percent.

TOTAL BENEFIT-COST RATIO: 1.5 to 1 at 8-1/2 percent.

INITIAL BENEFIT-COST RATIO: 1.2 to 1 at 8-1/2 percent (FY 1994).

BASIS OF BENEFIT-COST RATIO: The benefit-cost ratio is based on the Chief of Engineers' Report dated January 1992, at 1991 price levels.

SUMMARIZED FINANCIAL DATA			ACCUMULATED PCT OF EST FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$ 170,000,000		Entire Project	2	Being Determined
Estimated Non-Federal Cost		61,000,000 1/				
Cash Contributions	$ 45,500,000					
Other Costs	15,500,000					
Total Estimated Project Cost		$ 231,000,000				

1/ Excludes the cost of the lateral collector system. (See STATUS OF LOCAL COOPERATION)

Division: South Pacific District: Los Angeles Tropicana and Flamingo Washes, Nevada

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUMULATED PCT OF EST FED COST
Allocations to 30 September 1995	$ 15,651,000	
Conference Allowance for FY 1996	4,000,000	
Allocation for FY 1996	3,668,000 1/	
Allocations through FY 1996	19,319,000	11
Allocation Requested for FY 1997	10,260,000	17
Programmed Balance to Complete after FY 1997	140,421,000	
Unprogrammed Balance to Complete after FY 1997	0	

1/ Reflects $332,000 reduction assigned as savings and slippage.

PHYSICAL DATA

PRIMARY CHANNELS (Trapezoidal concrete)

RED ROCK CHANNEL:
Length: 6 miles
Base Width: 5-15 feet
Depth: 6-9 feet

FLAMINGO DIVERSION CHANNEL:
Length: 3.7 miles
Base Width: 5-20 feet
Depth: 7-11.5 feet

BLUE DIAMOND DIVERSION CHANNEL:
Length: 6.5 miles
Base Width: 3-5 feet
Depth: 5-9.5 feet

R-4, F-1, F-2 and F-4 CHANNELS:
Length: 10.1 miles (total)
R-4: 3 miles F-2: 1.7 miles
F-1: 3.7 miles F-4: 1.7 miles
Base Width: 5 feet

ENVIRONMENTAL MITIGATION
Habitat of threatened desert tortoise
Permanent disturbance: 730 acres
Temporary disturbance: 215 acres

RECREATION FACILITIES
Picnic areas around detention basins
Trails: Hiking, bicycle and equestrian

DETENTION BASINS

RED ROCK DETENTION BASIN MODIFICATION:
Type: Compacted earthfill embankment
Maximum Height: 60 feet
Length: 4,000 feet
Spillway Length: 940 feet (600 existing, 340 auxiliary)
Basin Capacity: 2,162 acre-feet

FLAMINGO DETENTION BASIN MODIFICATION:
Type: Compacted earthfill embankment
Maximum Height: 38 feet
Length: 4,800 feet
Spillway Length: 180-foot-wide labyrinth
Spillway Elevation: 2470.5 feet NGVD
Basin Capacity: 1,706 acre-feet

BLUE DIAMOND DETENTION BASIN:
Type: Roller compacted concrete
Maximum Height: 49 feet
Outlet Discharge: 180 cfs
Length: 6,524 feet
Crest Elevation: 2869 feet NGVD
Basin Capacity: 2,224 acre-feet

TROPICANA DETENTION BASIN:
Type: Compacted Earthfill Embankment
Maximum Height: 10 feet
Outlet Discharge: 500 cfs
Length: 3,300 feet
Spillway Length: 2,800 feet
Spillway Elevation: 2,290 feet NGVD
Basin Capacity: 825 acre-feet

DEBRIS BASINS

R-4 DEBRIS BASIN
Type: Basin/earthfill embankment combination, with dumpstone-revetted embankment
Maximum Height: 35 feet
Length: 2,000 feet
Basin Capacity: 94 acre-feet

F-1 DEBRIS BASIN
Type: Basin/earthfill embankment combination, with dumpstone-revetted embankment
Maximum Height: 30 feet
Length: 700 feet
Basin Capacity: 75 acre-feet

F-2 DEBRIS BASIN
Type: Excavated pit with grouted sideslopes
Average Depth: 35 feet
Average Sideslopes: 2 horizontal on 1 vertical
Basin Capacity: 17 acre-feet

F-4 DEBRIS BASIN
Type: Excavated pit with grouted-stone sideslopes
Average Depth: 25 feet
Average Sideslopes: 2 horizontal on 1 vertical
Basin Capacity: 20 acre-feet

23-577 96 - 53

1663

JUSTIFICATION: Construction of the authorized plan would provide a 100-year level of flood protection to the developing alluvial fan area and to portions of the existing developed urban community. The population of the Las Vegas Valley has increased from 94,000 in 1959 to 835,000 in 1991 and is expected to exceed 1 million by the year 2000, greatly increasing the potential for and severity of urban flood damages along Tropicana and Flamingo Washes. The present value of structures and contents in the overflow area is about $2.1 billion. Most major flooding events result from heavy local summer thunderstorms. The July 1975 flood caused $5 million in damages, $12.3 million at current prices, throughout the greater Las Vegas communities. The severity of the July and August 1984 flooding and associated damages, estimated at $7.9 million, resulted in a Presidential disaster declaration for Clark County, including the Las Vegas Valley, in September 1984. Clark County also passed an emergency $15 million bond issue to deal with the flooding problem. In June 1985, the Clark County Regional Flood Control District was created by the Nevada State Legislature to provide an effective organization to address the flood problems in Clark County. The flood control district completed a Flood Control Master Plan in May 1986 which identifies a recommended plan for the Las Vegas Valley. The floods of June-July 1990 caused three fatalities and approximately $7.6 million in damages. Practically all of these damages would have been prevented had the project been in full operation. Average annual benefits, at October 1991 price levels, are $27,800,000, all flood control.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate construction of Flamingo Diversion Channel and Lower Blue Diamond Diversion Channel	$ 1,299,000
Continue construction of Tropicana Dam	5,000,000
Planning, Engineering, and Design for Flamingo Dam	630,000
Planning, Engineering, and Design for Blue Diamond Dam	840,000
Planning, Engineering, and Design for Flamingo Diversion Channel	560,000
Planning, Engineering, and Design for Red Rock/R-4 Channels,R-4 Debris Basin	838,000
Planning, Engineering, and Design for F-2/F-4 Debris Basins and Channels	790,000
Engineering and Design	83,000
Construction Management	220,000
Total	$10,260,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Requirements Costs
Provide lands, easements, rights-of-way, borrow and excavated and dredged material disposal areas (including mitigation).	$ 15,500,000	$
Pay 17.9 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, as reduced for credit allowed based on prior work (Section 104 of the Water Resources Development Act of 1986) and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	39,000,000	500,000
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, repair, rehabilitation and replacement of recreation facilities.	6,500,000	
Total Non-Federal Project Costs	$ 61,000,000	$ 500,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The Clark County Regional Flood Control District and the Department of Public Works are the local sponsors for flood control. The Clark County Recreation Department is the potential local sponsor for the recreation feature. The Project Cooperation Agreement (PCA) was executed on 7 February 1995. The current non-Federal cost estimate of $61,000,000, which includes a cash contribution of $45,500,000, is a decrease of $100,000 from the non-Federal cost estimate of $61,100,000 noted in the Project Cooperation Agreement, which included a cash contribution of $45,100,000. The cash contribution is to be partially offset by a credit of $9.9 million allowed for locally-constructed flood control work determined to be in accordance with Section 104 of the Water Resources Development Act of 1986. In addition, the non-Federal sponsor will incur costs of $16 million (1994 price level) for construction of the lateral collector system.

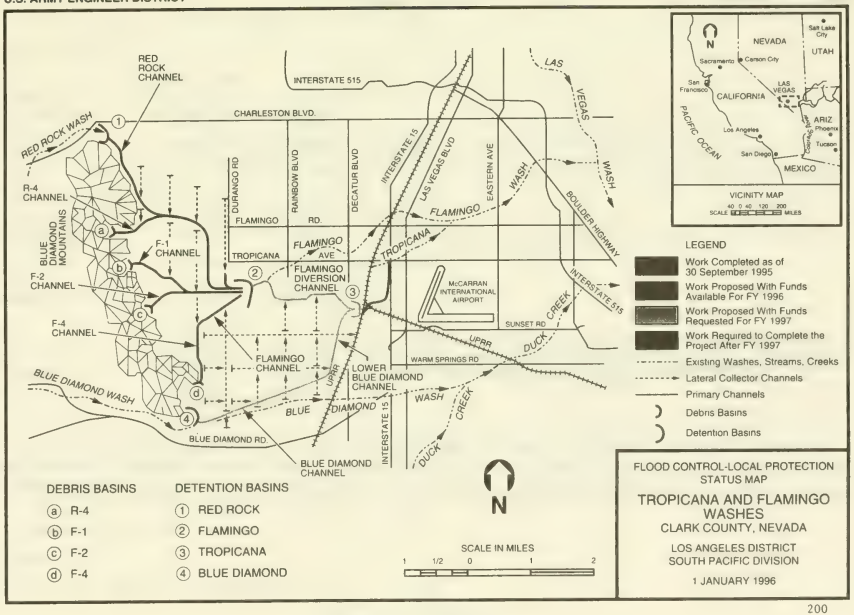
Division: South Pacific District: Los Angeles Tropicana and Flamingo Washes, Nevada

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $170,000,000 is an increase of $100,000 over the latest estimate ($169,900,000) presented to Congress (FY 1996). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$- 4,264,000
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	4,364,000
Total	$ 100,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final environmental impact statement (EIS) was filed with the Environmental Protection Agency (EPA) in October 1991.

OTHER INFORMATION: Funds were appropriated to initiate preconstruction engineering and design in FY 1992 and to initiate construction in FY 1994.



FLOOD CONTROL-LOCAL PROTECTION STATUS MAP

TROPICANA AND FLAMINGO WASHES

CLARK COUNTY, NEVADA

LOS ANGELES DISTRICT
SOUTH PACIFIC DIVISION

1 JANUARY 1996

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. NAVIGATION

a. Channels and Harbors.

The budget estimate of $35,610,000 provides for essential operation and maintenance on 28 channel and harbor projects named in the list which follows. The work to be accomplished under this activity consists of operating and maintaining the coastal navigation channels, harbors and anchorages by means of dredging, constructing bulkheads and spoil disposal areas, snagging, and repairing channel stabilization works, navigation structures; and harbor jetties, all as authorized in the laws pertaining to river and harbor projects.

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total	FY 1997 Total	Reason For Change And Major Maintenance Items
	(Operations) (Maintenance)	(Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
CALIFORNIA			
Channel Islands Harbor	856,000	2,000,000	
	(0)	(0)	1. None.
	(856,000)	(2,000,000)	2. Dredging.
Humboldt Harbor and Bay	5,124,000	3,155,000	
	(0)	(0)	1. None.
	(5,124,000)	(3,155,000)	2. Dredging.
Jack D. Maltester Channel (San Leandro Marina)	0	1,450,000	
	(0)	(0)	1. None.
	(0)	(1,450,000)	2. Dredging
Los Angeles-Long Beach Harbor Model	154,000	165,000	
	(0)	(0)	1. None.
	(154,000)	(165,000)	2. None.

1668

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. NAVIGATION (Cont'd)

a. Channels and Harbors (Cont'd)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason For Change And Major Maintenance Items
			1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-)
			2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
CALIFORNIA (Cont'd)			
Los Angeles-Long Beach Harbors	727,000	100,000	
	(727,000)	(100,000)	1. Comprehensive structural survey of San Pedro breakwater and hydrographic sediment survey in FY 96
	(0)	(0)	2. None.
Moss Landing Harbor	812,000	1,130,000	
	(0)	(0)	1. None.
	(812,000)	(1,130,000)	2. Jetty repair.
Napa River	0	2,056,000	
	(0)	(21,000)	1. Complete dredge material management plan in FY 97.
	(0)	(2,035,000)	2. Dredging.
Newport Bay Harbor	1,216,000	40,000	
	(0)	(40,000)	1. Hydrographic sediment survey in FY 97.
	(1,216,000)	(0)	2. None.
Noyo River and Harbor	0	736,000	
	(0)	(21,000)	1. Complete dredge material management plan in FY 97.
	(0)	(715,000)	2. Dredging.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. NAVIGATION (Cont'd)

a. Channels and Harbors (Cont'd)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason For Change And Major Maintenance Items (1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
CALIFORNIA (Cont'd)			
Oakland Harbor	2,121,000	2,625,000	
	(330,000)	(695,000)	1. Monitor Sonoma Baylands disposal site and complete dredge material management plan in FY 97.
	(1,791,000)	(1,930,000)	2. Dredging.
Oceanside Harbor	757,000	680,000	
	(0)	(0)	1. None.
	(757,000)	(680,000)	2. Dredging.
Port Hueneme Harbor	130,000	399,000	
	(0)	(0)	1. None.
	(130,000)	(399,000)	2. None.
Richmond Harbor	2,521,000	3,025,000	
	(0)	(50,000)	1. Complete dredge material management plan in FY 97.
	(2,521,000)	(2,975,000)	2. Dredging.
Sacramento River (30' Channel)	2,115,000	2,099,000	
	(97,000)	(89,000)	1. None.
	(2,018,000)	(2,010,000)	2. Dredging.

1670

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. NAVIGATION (Cont'd)

a. Channels and Harbors (Cont'd)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total	FY 1997 Total	Reason For Change And Major Maintenance Items
	(Operations) (Maintenance)	(Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
CALIFORNIA (Cont'd)			
Sacramento River (Shallow Draft Channel)	125,000	105,000	
	(95,000)	(75,000)	1. Periodic inspection of the bascule bridge in FY 96.
	(30,000)	(30,000)	2. None.
Sacramento River (Debris Control)	840,000	897,000	
	(840,000)	(867,000)	1. None.
	(0)	(30,000)	2. None.
San Diego Harbor	1,043,000	175,000	
	(0)	(175,000)	1. Hydrographic sediment survey in FY 97.
	(1,043,000)	(0)	2. None.
San Diego River-Mission Bay	0	35,000	
	(0)	(35,000)	1. Hydrographic sediment survey in FY 97.
	(0)	(0)	2. None.
San Francisco Bay-Delta Model Structure	1,878,000	2,030,000	
	(972,000)	(990,000)	1. None.
	(906,000)	(1,040,000)	2. None.
San Francisco Bay Long Term Management Strategy	647,000	100,000	
	(647,000	(100,000)	1. Complete environmental assessment in FY 96.
	(0)	(0)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. NAVIGATION (Cont'd)

a. Channels and Harbors (Cont'd)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total	FY 1997 Total	Reason For Change And Major Maintenance Items
	(Operations)	(Operations)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-)
	(Maintenance)	(Maintenance)	2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
CALIFORNIA (Cont'd)			
San Francisco Harbor	2,174,000	2,365,000	
	(0)	(50,000)	1. Complete dredge material management plan in FY 97.
	(2,174,000)	(2,315,000)	2. Dredging.
San Joaquin River	1,993,000	1,960,000	
	(84,000)	(131,000)	1. Complete dredge material management plan in FY 97.
	(1,909,000)	1,829,000)	2. Dredging.
San Pablo Bay and Mare Island Strait	1,378,000	1,410,000	
	(0)	(0)	1. None.
	(1,378,000)	(1,410,000)	2. Dredging.
San Rafael Creek	0	2,515,000	
	(0)	(0)	1. None.
	(0)	(2,515,000)	2. Dredging.
Santa Barbara Harbor	1,579,000	1,265,000	
	(0)	(0)	1. None.
	(1,579,000)	(1,265,000)	2. Dredging.
Suisun Bay Channel	650,000	745,000	
	(0)	(50,000)	1. Complete dredge material management plan in FY 97.
	(650,000)	(695,000)	2. Dredging.

1672

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

1. NAVIGATION (Cont'd)

a. Channels and Harbors (Cont'd)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total	FY 1997 Total	Reason For Change And Major Maintenance Items
	(Operations) (Maintenance)	(Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
CALIFORNIA (Cont'd)			
Ventura Harbor	2,200,000	2,300,000	
	(0)	(0)	1. None.
	(2,200,000)	(2,300,000)	2. Repair north jetty and detached breakwater.
Yuba River	39,000	48,000	
	(21,000)	(29,000)	1. Periodic inspection of Daguerre Point Dam in FY 97.
	(18,000)	(19,000)	2. None.
OTHER PROJECTS MAINTAINED PERIODICALLY	6,527,000		
	(0)		
	(6,527,000)		
TOTAL - Channels and Harbors	37,606,000	35,610,000	
	(3,813,000)	(3,518,000)	
	(33,793,000)	(32,092,000)	

b. Locks and Dams - None

TOTAL - NAVIGATION	37,606,000	35,610,000	
	(3,813,000)	(3,518,000)	
	(33,793,000)	(32,092,000)	

1673

SOUTH PACIFIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. FLOOD CONTROL

a. Reservoirs

The program request of $30,074,000 provides for the operation and maintenance of 20 flood control projects and scheduling of flood control reservoir operations at operating publicly owned and Bureau of Reclamation projects in the Division. The request also includes the requirements for operation and maintenance of recreation facilities at reservoir projects. The amount requested is necessary for operation and ordinary maintenance of project facilities; labor, supplies, replacements; and contract law enforcement. The requested amount also includes application of special recreation use fees for recreation areas.

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason For Change And Major Maintenance Items 1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
ARIZONA			
Alamo Lake	1,128,000	1,069,000	
	(943,000)	(917,000)	1. None.
	(185,000)	(152,000)	2. None.
Painted Rock Dam	3,699,000	1,136,000	
	(769,000)	(1,000,000)	1. Hydraulic fracturing analysis of dam in FY 97.
	(2,830,000)	(136,000)	2. None.
Whitlow Ranch Dam	109,000	112,000	
	(68,000)	(71,000)	1. None.
	(41,000)	(41,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. FLOOD CONTROL (Cont'd)

a. Reservoirs (Cont'd)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason For Change And Major Maintenance Items 1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
CALIFORNIA			
Black Butte Lake	1,482,000	1,576,000	
	(1,482,000)	(1,546,000)	1. None.
	(0)	(30,000)	2. None.
Buchanan Dam - H.V. Eastman Lake	1,299,000	1,376,000	
	(1,203,000)	(1,256,000)	1. None.
	(96,000)	(120,000)	2. None.
Coyote Valley Dam - Lake Mendocino	2,332,000	2,432,000	
	(2,332,000)	(2,397,000)	1. None.
	(0)	(35,000)	2. None.
Dry Creek (Warm Springs) Lake and Channel	3,056,000	3,177,000	
	(3,056,000)	(3,142,000)	1. None.
	(0)	(35,000)	2. None.
Farmington Dam	162,000	192,000	
	(162,000)	(192,000)	1. Install new water control data equipment in FY 97.
	(0)	(0)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. FLOOD CONTROL (Cont'd)

a. Reservoirs (Cont'd)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total	FY 1997 Total	Reason For Change And Major Maintenance Items
	(Operations) (Maintenance)	(Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
CALIFORNIA (Cont'd)			
Hidden Dam - Hensley Lake	1,676,000	1,446,000	
	(1,676,000)	(1,416,000)	1. Dam safety assurance study in FY 96.
	(0)	(30,000)	2. None.
Isabella Lake	816,000	1,125,000	
	(816,000)	(855,000)	1. None.
	(0)	(270,000)	2. None.
Los Angeles County Drainage Area	3,298,000	3,729,000	
	(1,537,000)	(1,781,000)	1. Periodic inspection of Santa Fe and Whittier Narrows Dams in FY 97.
	(1,761,000)	(1,948,000)	2. None.
Merced County Streams Group	190,000	291,000	
	(190,000)	(286,000)	1. Periodic inspection of Bear Dam and install new water control data equipment in FY 97.
	(0)	(5,000)	2. None.
Mojave River Reservoir	209,000	222,000	
	(138,000)	(143,000)	1. None.
	(71,000)	(79,000)	2. None.

1676

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. FLOOD CONTROL (Cont'd)

a. Reservoirs (Cont'd)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total	FY 1997 Total	Reason For Change And Major Maintenance Items
	(Operations) (Maintenance)	(Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
CALIFORNIA (Cont'd)			
New Hogan Lake	1,501,000	1,651,000	
	(1,501,000)	(1,621,000)	1. None.
	(0)	(30,000)	2. None.
Pine Flat Lake	2,381,000	2,721,000	
	(2,381,000)	(2,291,000)	1. None.
	(0)	(430,000)	2. None.
Santa Ana River Basin	2,689,000	2,739,000	
	(1,593,000)	(1,537,000)	1. None.
	(1,196,000)	(1,202,000)	2. None.
Success Lake	2,276,000	1,610,000	
	(2,136,000)	(1,580,000)	1. Dam safety assurance study in FY 96.
	(140,000)	(30,000)	2. None.
Terminus Dam (Lake Kaweah)	1,638,000	1,569,000	
	(1,464,000)	(1,539,000)	1. None.
	(174,000)	(30,000)	2. None

1677

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. FLOOD CONTROL (Cont'd)

a. Reservoirs (Cont'd)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason For Change And Major Maintenance Items (1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
NEVADA			
Martis Creek Lake	365,000	483,000	
	(365,000)	(463,000)	1. Periodic inspection of dam and install new water control data equipment in FY 97.
	(0)	(20,000)	2. None.
Pine and Mathews Canyons Lakes	158,000	164,000	
	(91,000)	(85,000)	1. None.
	(67,000)	(79,000)	2. None.
Scheduling Reservoir Operations			
	658,000	1,254,000	
Arizona	(70,000)	(70,000)	1. Prepare environmental assessments; convert and update water control data system equipment; and respond to an increase in requests from project owners for advise on operating procedures in FY 97. (California, Colorado, and Utah)
California	(397,000)	(739,000)	
Colorado	(68,000)	(286,000)	
Utah	(123,000)	(159,000)	
	(0)	(0)	2. None.

The $1,254,000 requested in FY 1997 supports preparation, review and updating of water control manuals, real-time data collection to monitor hydrologic conditions, and the issuance of gate regulation instructions as necessary at 33 non-Corps dam and reservoir projects at which the Corps is responsible for flood control or navigation.

1678

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. FLOOD CONTROL (Cont'd)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total	FY 1997 Total	Reason For Change And Major Maintenance Items
	(Operations) (Maintenance)	(Operations) (Maintenance)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-) 2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
Total - Reservoirs	31,122,000 (24,561,000) (6,561,000)	30,074,000 (25,372,000) (4,702,000)	

b. Channel Improvements, Inspections and Miscellaneous Maintenance

Inspection of Completed Works

The $1,372,000 requested in FY 1997 supports inspections at flood control projects constructed by the Corps and operated and maintained by non-Federal interests. The inspections are conducted to determine the extent of compliance with legal standards and to advise local interests, as necessary, of corrective measures required to ensure that project structures and facilities will continue to safely provide flood protection benefits. These projects consist of features such as channels, levees, flood walls, drainage structures and pumping plants.

	1,100,000	1,372,000	
Arizona	(42,000)	(72,000)	1. Increase in number of inspections to be performed in FY 97.
California	(1,003,000)	(1,224,000)	(In all States)
Colorado	(25,000)	(35,000)	
Utah	(30,000)	(41,000)	
	(0)	(0)	2. None.
TOTAL - Channel Improvements, Inspections and Miscellaneous Maintenance	1,100,000 (1,100,000) (0)	1,372,000 (1,372,000) (0)	

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

2. FLOOD CONTROL (Cont'd)

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total	FY 1997 Total	Reason For Change And Major Maintenance Items
	(Operations)	(Operations)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-)
	(Maintenance)	(Maintenance)	2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
TOTAL - FLOOD CONTROL	32,222,000	31,446,000	
	(25,661,000)	(26,744,000)	
	(6,561,000)	(4,702,000)	

3. MULTIPLE PURPOSE POWER PROJECTS

The program request of $910,000 for the operation and maintenance of the channel below the multiple purpose New Melones Lake project provides the amount for operation requirements of recreation and natural resource facilities along the Stanislaus River downstream of the dam. The amount requested is necessary for operation and maintenance of downstream channel facilities; labor, supplies, materials, and parts required for the day-to-day functioning of the channel project.

CALIFORNIA

New Melones Lake	863,000	910,000	
	(863,000)	(885,000)	1. None.
	(0)	(25,000)	2. None.
TOTAL - MULTIPLE PURPOSE	863,000	910,000	
	(863,000)	(885,000)	
	(0)	(25,000)	

1680

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1997

4. PROTECTION OF NAVIGATION

The $3,705,000 requested in FY 1997 provides for removal of drift and debris; and supports hydrographic surveys, inspections, and studies to determine the condition of navigation channels that do not have any other maintenance work included in the budget request and disseminate the information to users of the projects. For the projects that do not require maintenance, surveys are performed at many of them in order to determine the degree of sedimentation so that users can be advised of channel conditions and future maintenance can be scheduled.

State/ Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total	FY 1997 Total	Reason For Change And Major Maintenance Items
	(Operations)	(Operations)	1. Reasons for change in Operations from FY 1996 to FY 1997 (10%+/-)
	(Maintenance)	(Maintenance)	2. Major Maintenance Items Budgeted in FY 1997 (Threshold $500,000)
Drift Removal			
San Francisco Harbor,	2,134,000	2,290,000	
Bay (Drift Removal), CA	(0)	(0)	1. None.
	(2,134,000)	(2,290,000)	2. Remove debris from navigation channels.
Project Condition Surveys			
	1,049,000	1,415,000	
California	(1,049,000)	(1,415,000)	1. Increase in number of surveys to be performed in FY 97.
	(0)	(0)	2. None.
TOTAL - PROTECTION OF	3,183,000	3,705,000	
NAVIGATION	(1,049,000)	(1,415,000)	
	(2,134,000)	(2,290,000)	
GRAND TOTAL-SOUTH PACIFIC	73,874,000	71,671,000	
DIVISION	(31,386,000)	(32,562,000)	
	(42,488,000)	(39,109,000)	

1681

STATUS REPORT ON CIVIL WORKS ACTIVITIES IN THE SOUTHWESTERN DIVISION FISCAL YEAR 1997 TESTIMONY

BG HENRY S. MILLER, JR., DIVISION ENGINEER
21 March 1996

INTRODUCTION

The Southwestern Division area embraces all or part of eight states, an expanse that contains about 16.3 percent of the land (576,000 square miles) and 10.2 percent of the 1990 population (25.3 million) of the United States. The Division's Civil Works area is also defined by the following hydrologic basins: the portions of the Upper and Lower Colorado River Basins in western New Mexico, the entire United States portion of the Rio Grande Basin, the Texas Gulf Region (river basins located mostly in Texas which drain into the Gulf), and the majority of the Arkansas, White and Red River Basins. The terrain varies from the eastern slopes of the Rocky Mountains in Colorado; to the arid regions of southern New Mexico; to the forested areas of Arkansas; to the tidal areas of southeast Texas. The Division is headquartered in Dallas, Texas, and includes five engineer districts, with offices located in Albuquerque, New Mexico; Fort Worth and Galveston, Texas; Little Rock, Arkansas; and Tulsa, Oklahoma.

FISCAL YEAR 1997 PROGRAM

The Fiscal Year 1997 Federal budget request for studies and projects in Southwestern Division is $332,556,000. Three and a half percent of this amount will be used for General Investigations; 26.4 percent will be used for Construction, General; and 70.1 percent will be used for Operation and Maintenance activities at existing projects. The requested amount for Fiscal Year 1997 is 4 percent more than the $320,050,000 in Federal funds that have been, or will be, allocated to the Southwestern Division in Fiscal Year 1996.

FISCAL YEAR 1995 PERFORMANCE

The scheduling of expenditures of funds in each of the three appropriations and subsequent execution of the schedule has been a great concern of the Corps and Southwestern Division. In the completed Fiscal Year 1995, Southwestern Division had an excellent record in meeting or exceeding the goals in all three appropriations. The actual expenditures vs. the scheduled expenditures were: General Investigations 92 percent vs. the goal of 92 percent; Construction, General 104 percent vs. a goal of 92 percent; and Operation and Maintenance 100 percent vs. a goal of 93 percent.

GENERAL INVESTIGATIONS

The Fiscal Year 1997 budget request for the General Investigations Appropriation is $11,646,000, of which 36 percent is allocated to surveys and 64 percent to preconstruction engineering and design (PED) activities. These Federal funds, together with scheduled local sponsor cash contributions of $1,879,000, will provide for continued planning engineering and design activities on high priority studies and projects in the Southwestern Division area. This total program of $13,525,000 for Fiscal Year 1997 is double the $6,714,000, including local sponsors' cash contributions of $524,000, which are scheduled to be expended in Fiscal Year 1996.

SURVEY STUDIES

The Fiscal Year 1997 request of $4,162,000 in Federal funds for survey studies, together with local sponsor cash contributions of $1,464,000 on eight studies for a total program of $5,626,000, will provide for the study effort on 12 separate survey investigations located on major river basins throughout the division area. These studies are located as follows: one in Arkansas; one in Kansas; one in New Mexico; and nine in Texas, as shown on the following table. These requested funds, together with the non-Federal contributions, will provide for the initiation of one reconnaissance study; the completion of two reconnaissance studies; the continuation into feasibility studies of one study; the continuation of one feasibility study at full Federal expense; and the continuation of seven feasibility studies in partnership with local sponsors. This total program of $5,626,000 compares with a total program of $2,719,000 in Fiscal Year 1996 (Federal funds of $2,417,000 - plus local sponsor contributions of $302,000).

INITIATION OF RECONNAISSANCE STUDIES

The Fiscal Year 1997 request includes $300,000 in Federal funds for the initiation of one reconnaissance study, Northwest El Paso, Texas.

COMPLETION OF RECONNAISSANCE STUDIES

The Fiscal Year 1997 request includes $307,000 in Federal funds for the completion of two reconnaissance studies: Grand (Neosho) River, Kansas and Alpine, Texas.

FEASIBILITY STUDIES

Included in the Fiscal Year 1997 request is $150,000 to be matched with $150,000 of non-Federal funds, for the continuation into the feasibility phase on one study: Rio Chama, Abiquiu Dam to Espanola, New Mexico.

FISCAL YEAR 1997 SURVEY PROGRAM

STUDY	FY 1997 FEDERAL REQUEST	LOCAL SPONSOR CASH CONTRIBUTION
ARKANSAS		
May Branch, Fort Smith	265,000	265,000
KANSAS		
Grand (Neosho) River	129,000	0
NEW MEXICO		
Rio Chama, Abiquiu Dam to Espanola	150,000	150,000
TEXAS		
Alpine	178,000	0
Colonias Along U.S. - Mexico Border	320,000	121,000
Corpus Christi Ship Channel	100,000	100,000
Cypress Valley Watershed	50,000	50,000
GIWW - High Island To Brazos River	1,200,000	0
Northwest El Paso	300,000	0
Pecan Bayou, Brownwood	140,000	128,000
Plainview, Brazos River Basin	100,000	50,000
Upper Trinity River Basin	1,230,000	600,000
TOTAL STUDIES	$4,162,000	$ 1,464,000

CONTINUATION OF FULL FEDERAL STUDIES

The Fiscal Year 1997 request includes $1,200,000 for continuation of the navigation feasibility study, GIWW - High Island to Brazos River at full Federal expense.

CONTINUATION OF PARTNERSHIP STUDIES

The Fiscal Year 1997 request includes $1,885,000 for continuation of feasibility studies on six surveys and $320,000 for technical assistance on one project for a total request of $2,205,000. The six surveys are being pursued on a 50-50 cost sharing basis with local sponsors in accordance with Public Law 99-662, the Water Resources Development Act of 1986. The technical assistance for the one project is being cost shared on a 75 percent Federal 25 percent non-Federal basis in accordance with Section 219 of the Water Resources Development Act of 1992. The requested funds, together with local sponsor cash contributions of $1,314,000 will provide for a Fiscal Year 1997 program of $3,519,000. The feasibility studies are May Branch, Fort Smith, Arkansas; and five in Texas, Corpus Christi Ship

Channel; Cypress Valley; Pecan Bayou, Brownwood; Plainview; and Upper Trinity River. The technical assistance project is Colonias Along U.S. - Mexico Border, Texas.

COMPLETION OF STUDIES

Three studies were completed and forwarded to HQUSACE in November 1995 by the Division Engineers Public Notice. These studies were: Gulf Intracoastal Waterway Aransas National Wildlife Refuge, Final Feasibility Report and Environmental Impact Statement, November 3, 1995; Las Cruces, New Mexico, Final Interim Feasibility Report and Environmental Assessment, November 9, 1995; and Houston - Galveston Navigation Channels, Texas, Revaluation Study, November 17, 1995. All of these reports are undergoing final reviews and could be available for construction authorization in the next Water Resources Development Act.

PRECONSTRUCTION ENGINEERING AND DESIGN

The request for Fiscal Year 1997 of $7,484,000 in Federal funds, together with local cash contributions of $415,000 on two projects, will provide for preconstruction engineering and design activities on ten projects. Funds are requested for completion of one project and continuation of nine projects. The cost of these engineering and design efforts will be cost shared with local sponsors in accordance with the cost sharing and financing concepts reflected in Public Law 99-662, the Water Resources Development Act of 1986. One project is located in New Mexico and nine are in Texas. The projects and amounts requested for Fiscal Year 1997 are listed in the following table.

The $7,484,000 of funds requested for Fiscal Year 1997 compare with $3,773,000 of Federal funds allocated for this category for Fiscal Year 1996. This change reflects the increased funding for each of the PED projects except South Main Channel which remains at the same level of funding.

COMPLETION OF PED PROJECTS

The Fiscal Year 1997 request includes $207,000 for the completion of PED activities on one project. This project is Las Cruces, El Paso and Vicinity, New Mexico.

CONTINUING PED PROJECTS

The Fiscal Year 1997 request includes $7,484,000 for the continuation of PED activities on nine projects. These Texas projects are Brays Bayou, Houston; Cypress Creek, Houston; Dallas Floodway Extension; Graham; Greens Bayou, Houston; Gulf Intracoastal Waterway - Aransas National Wildlife Refuge; Houston-Galveston Navigation Channels; Neches River and Tributaries, Saltwater Barrier; and South Main Channel.

FISCAL YEAR 1997 PRECONSTRUCTION ENGINEERING AND DESIGN PROGRAM (PED)

PROJECT	FY 1997 REQUESTED AMOUNT
NEW MEXICO	
Las Cruces, El Paso and Vicinity	207,000
TEXAS	
Brays Bayou, Houston	1,110,000
Cypress Creek, Houston	400,000
Dallas Floodway Extension, Trinity River	930,000
Graham, (Brazos River Basin)	50,000
Greens Bayou, Houston	860,000
Gulf Intracoastal Waterway - Aransas National Wildlife Refuge	857,000
Houston-Galveston Navigation Channels	1,900,000
Neches River and Tributaries, Saltwater Barrier	520,000
South Main Channel	650,000
TOTAL	$7,484,000

CONSTRUCTION, GENERAL

The Fiscal Year 1997 request for Construction, General, in the amount of $87,700,000, provides for construction activities on 29 projects. These requested funds, together with scheduled cash contributions from the local sponsors of $8,200,000, give a total construction program of $95,900,000. These funds will provide for a construction program that includes the continuation of construction on 25 projects and the funding for completion of four projects, all in Texas: Beals Creek, Big Spring; Ray Roberts Lake; Sam Rayburn Spillway; and San Antonio Channel Improvement. The proposed total program of $95,900,000 for the Southwestern Division in Fiscal Year 1997 compares with the $79,790,000 in allocated Federal funds and local sponsors' cash contributions of $7,936,000 for a total program of $87,726,000 in Fiscal Year 1996.

The following table of Fiscal Year 1997 Federal funds requests, shows a project for which no funds are being requested. The Red River Basin Chloride Control project will be funded with appropriations from prior fiscal years which will be carried over into Fiscal Year 1997. The programmed carryover funds are sufficient to support planned Fiscal Year 1997 activities for this project and no additional funds are requested or needed.

PROJECT COMPLETIONS

Included in the requested funds is $3,004,000 to complete construction on Ray Roberts Lake, Texas. This project was first funded for construction in Fiscal Year 1975 and thus will have been under construction for 22 years.

Three projects, testified to last year for completion funding, appear in the request for Fiscal Year 1997. These three Texas projects are Beals Creek, Big Spring; Sam Rayburn Dam (Dam Safety); and San Antonio Channel Improvement. Completion of each project was delayed from the scheduled completion because of locals failure to obtain required lands, a contract modification and having to remove hazardous waste from the construction site, respectively. The funds requested for Fiscal Year 1997, totaling $4,196,000, will be sufficient to complete the remaining construction activities on each of these projects. The total project increase in cost for these three projects is $3,010,000, with $2,110,000 belonging to San Antonio Channel Improvement.

In September 1996, the American Society of Civil Engineers will designate the San Antonio River Walk and Flood Control System as a National Historic Civil Engineering Landmark. Engineering designs for controlling floods in San Antonio go back to 1865 and the Corps project now completes the system.

Another project which was last budgeted in Fiscal Year 1992 will be physically completed this year. The Fourche Bayou Basin, Little Rock, Arkansas project provides flood protection to a large area of Little Rock.

FISCAL YEAR 1997 CONTINUING CONSTRUCTION PROGRAM

PROJECT	FY 1997 FEDERAL FUNDS REQUESTS	FY 1997 NON-FEDERAL CASH CONTRIBUTIONS	TOTAL FY 1997 NON-FEDERAL COSTS 1/
ARKANSAS			
Dardanelle Lock and Dam Powerhouse (Major Rehabilitation)	$ 6,000,000	$ 0	$ 0
Montgomery Point Lock and Dam	5,886,000 *	0	0
ARKANSAS AND OKLAHOMA			
McClellan-Kerr Arkansas River Navigation System, Locks and Dam	1,414,000	0	0
COLORADO			
Alamosa	100,000	100,000	200,000
KANSAS			
Arkansas City	50,000	0	2,965,000
Winfield	50,000	0	1,100,000

FISCAL YEAR 1997 CONTINUING CONSTRUCTION PROGRAM (Continued)

PROJECT	FY 1997 FEDERAL FUNDS REQUESTS	FY 1997 NON-FEDERAL CASH CONTRIBUTIONS	TOTAL FY 1997 NON-FEDERAL COSTS 1/
MISSOURI AND ARKANSAS			
Table Rock Lake, (Dam Safety)	460,000	0	0
NEW MEXICO			
Abiquiu Dam Emergency Gates	1,000,000	0	0
Acequias Irrigation System	300,000	100,000	100,000
Alamogordo	100,000	0	0
Galisteo Dam, (Dam Safety)	150,000	0	0
Middle Rio Grande Flood Protection, Bernalillo to Belen	3,700,000	1,910,000	1,910,000
Rio Grande Floodway, San Acacia to Bosque Del Apache	100,000	0	1,000,000
Two Rivers Dam, (Dam Safety)	250,000	0	0
OKLAHOMA			
Fry Creeks, Bixby	5,000,000	880,000	1,441,000
Mingo Creek, Tulsa	5,100,000	2,300,000	5,673,000
Tenkiller Ferry Lake, (Dam Safety)	690,000	0	0
TEXAS			
Beals Creek, Big Spring	1,396,000	90,000	434,000
Channel to Victoria	9,550,000	780,000	2,059,000
Clear Creek	1,700,000	262,000	8,698,000
El Paso	8,200,000	800,000	1,400,000
GIWW - Sargent Beach	18,300,000 **	0	0
McGrath Creek, Wichita Falls	900,000	270,000	1,163,000
Ray Roberts Lake	3,004,000	0	0
Sam Rayburn Dam, (Dam Safety)	1,200,000	0	0
San Antonio Channel Improvement	1,600,000	13,000	13,000
Sims Bayou, Houston	11,200,000	695,000	4,276,000
Waco Lake, (Dam Safety)	300,000	0	0
TEXAS AND OKLAHOMA			
Red River Basin Chloride Control	0	0	0
TOTALS	$ 87,700,000	$8,200,000	$32,492,000

1/ Includes Lands, Easements, Rights-of-Way, Relocations and Disposal Areas and Cash Contributions, as applicable.

* Requested funds would come from the Inland Waterway Trust Fund.

** Requested funds would be cost shared 50/50 with General Treasury funds and Inland Waterway Trust Fund.

OPERATION AND MAINTENANCE

The Fiscal Year 1997 request for the Operation and Maintenance Appropriation for projects and activities in the Southwestern Division is $233,210,000. The requested funds will be divided among the major funding categories as follows: 24 percent for Channels and Harbors along the Texas Gulf coast; 10 percent for Locks and Dams along the McClellan-Kerr Arkansas River Navigation System; 37 percent for Flood Control; and 29 percent for Multiple Purpose Power Projects.

CHANNELS AND HARBORS

The Fiscal Year 1997 request for dredging and maintaining 13 projects along the Texas Gulf Coast is $55,322,000. The requested funds will provide for the continued maintenance of channel and harbor projects along the Texas Gulf Coast, including Freeport Harbor, the Gulf Intracoastal Waterway, the Houston Ship Channel and the Sabine-Neches Waterway. The Port of Houston is the second largest port in the United States and seven of the 48 largest ports in the U.S. depend on Southwestern Division for maintenance of the channels. In Fiscal Year 1994, the Harbor Maintenance Trust Fund returned $35.5 million for twelve projects in Texas.

A highlight for Fiscal Year 1996 is development of Dredged Material Management Plans (DMMP) for one third of the channel and harbor projects on the Texas coast. Comprehensive and environmentally sound 20-year plans for the disposal of dredged material, including future acquisition of additional disposal sites, will result from these studies.

LOCKS AND DAMS

The request of $24,155,000 for Fiscal Year 1997 for Locks and Dams will provide for the operation of 13 Locks and Dams and the channel on the McClellan-Kerr Arkansas River Navigation System. Funds to provide for the operation of the remaining four locks are included in the request for each of four projects in the Multiple Purpose Power Projects category. These four locks are Dardanelle Lock and Dam, Arkansas; Ozark-Jeta Taylor Lock and Dam, Arkansas; Robert S. Kerr Lock and Dam and Reservoir, Oklahoma; and Webbers Falls Lock and Dam, Oklahoma. The navigation system, which consists of 17 locks and dams, four multiple purpose power projects and a channel between the structures, extends from the Mississippi River 445 navigation miles to the head of navigation at Catoosa, Oklahoma, about 15 miles east of Tulsa.

A highlight in calendar year 1995 was a record 11.1 million tons of cargo moved on the system. Other highlights for Fiscal Year 1996 will be the installation of tow haulage equipment on two locks. This equipment will allow for faster and more efficient lockages of double length tows. Other highlights include extended bank stabilization structures in Dardanelle Lake reducing the amount of maintenance dredging. New tainter gate controls for Dardanelle Dam will be installed for more efficient operation.

FLOOD CONTROL

The request of $85,596,000 for Fiscal Year 1997 will provide for the continued operation and maintenance of 70 flood control reservoirs, one other project (Estelline Springs Project, Texas) and two other flood control activities (scheduling reservoir operations and inspection of completed works). The 70 reservoirs are located as follows: six in Arkansas; two in Colorado; eight in Kansas; one in Missouri; seven in New Mexico; 19 in Oklahoma; and 27 in Texas.

Highlights for Fiscal Year 1996 include repairs to embankment slides on Lewisville Dam and completed construction of movable bulkheads for Table Rock Dam and Beaver Dam spillways. These new bulkheads will allow maintenance of tainter gates at high lake levels. The program to inspect and rehabilitate existing bulkheads and stoplogs will be completed in both Little Rock and Tulsa Districts.

MULTIPLE PURPOSE POWER PROJECTS

The Fiscal Year 1997 funds requested for multiple purpose power projects in the Southwestern Division are $67,089,000. The requested funds will provide for the continued operation and maintenance of 18 projects. These projects are located as follows: six in Arkansas; one in Missouri; seven in Oklahoma; three in Texas; and one on the Texas-Oklahoma state line. These hydroelectric power projects have a total installed capacity of 1,726.2 megawatts and produced almost 6.9 billion kilowatt-hours in Fiscal Year 1995. This electric production was 17 percent less than the record year 8.3 billion kilowatt-hours produced in Fiscal Year 1993, because of the lower river flows. This amount of electricity, generated pollution free in Fiscal Year 1995, would provide the yearly electricity to approximately 787,000 households or about 2.1 million people. The Southwestern Power Administration returned to the U.S. Treasury a total of $48.3 million from the sale of power from these Southwestern Division powerplants. This return includes the operation and maintenance cost, interest on the investment and amortization of the investment. These 18 projects, as a group, also provide one or more other benefits, including flood control, recreation, navigation, and water supply. Four of these projects, Dardanelle Lock and Dam, Arkansas; Ozark-Jeta Taylor Lock and Dam, Arkansas; Robert S. Kerr Lock and Dam and Reservoir, Oklahoma; and Webbers Falls Lock and Dam, Oklahoma, have locks that are an integral part of the McClellan-Kerr Arkansas River Navigation System.

Highlights for Fiscal Year 1996 include updating the voltage regulator at Whitney Powerplant with modern solid state equipment to reduce maintenance costs. Remote control of Whitney Powerplant will change from Denison Powerplant to Sam Rayburn Powerplant. Then Denison Powerplant will be remotely controlled from Robert S. Kerr Powerplant. The result is a saving of five powerplant operator positions. The Webbers Falls Supervisory Control and Data Acquisition Equipment is being replaced with more modern equipment to reduce maintenance costs.

PROTECTION OF NAVIGATION

The request for the Protection of Navigation category for Fiscal Year 1997 is $60,000. These funds will be used for project condition surveys on those projects for which maintenance is not scheduled in Fiscal Year 1997.

RECREATION

Outdoor recreation is an important part of the lifestyle of the Southwest. Nationwide, the Corps of Engineers is the second largest Federal provider of recreation opportunities. Southwestern Division receives 23 percent of the Corps' total visitation and provides recreation opportunities to approximately 87 million visitors each year at 98 operating projects and 660 Corps managed recreation areas located in seven states. This averages 238,000 people visiting Southwestern Division projects every day of the year. Last year, Southwestern Division collected more than $10 million in recreation fees which were 40 percent of the total recreation fees collected by the Corps nationwide. The total visitation at Corps facilities in Southwestern Division in 1995 exceeded the total visitation of the 13 largest amusement/theme parks in the United States.

Highlights in fiscal year 1996 include an efficiency review of park operations to be conducted by Little Rock District. This analysis will look at more cost effective ways to provide recreation to our using public. Recreation partnership initiatives are being pursued at two sites in Fort Worth District. These initiatives will allow private development to enhance our recreational facilities. At Conchas Lake, New Mexico, negotiations are underway to lease the old South Recreation area to a local school for non-Federal operation and maintenance of the facilities.

FLOOD DAMAGES PREVENTED

The values of flood damages prevented by all Southwestern Division projects are calculated each year. In Fiscal Year 1995, these damages prevented totaled $3.1 billion. In the Southwestern Division, flood damages prevented during the lifetime of each project have now accumulated to $30.6 billion. Seven major projects in the Dallas - Fort Worth area account for the majority of these damages prevented. The amount of damages these projects prevented in Fiscal Year 1995 was $2.1 billion and the life time cumulative amount is now $19.6 billion. These seven projects are Benbrook Lake, the Fort Worth Floodway system, Grapevine Lake, Lewisville Dam, Ray Roberts Lake, and the Dallas Floodway system and Joe Pool Lake. The total Federal investment in these projects including Operation and Maintenance costs is currently $681 million. This gives a return of $28.75 for every Federal $1.00 invested.

Joe Pool Lake, a new project in this system, has a current total Federal investment cost of $194.5 million. The flood damages prevented that have been attributed to this new project are already $510 million for a quick return on the investment of $2.62 for each dollar invested.

Another evaluation of the worth of Southwestern Division flood control projects is, during the comparatively flood free Fiscal Year 1995, the flood damages prevented of over $3.1 billion were nine times the total SWD allocations of $347 million for ALL purposes. The Federal investment in flood control measures in the Southwestern Division has and will continue to provide excellent returns.

EMERGENCY MANAGEMENT

Southwestern Division was fortunate during the last year in that it had no major natural disasters within our area. However, within a few hours of the event, we did have personnel on the scene of the bombing of the Federal Building in Oklahoma City. In total there were 48 Corps team members, 27 from the Southwestern Division that were critical to the rescue and recovery efforts. These included structural specialists that monitored the stability of the shattered building to prevent loss of life among the rescue workers. We also supplied personnel to the Virgin Islands and currently have three civilian specialists from Southwestern Division involved in the operations in Bosnia. The "Pacesetter" Southwestern Division remains ready to respond to our citizens calls for help in times of national disaster or emergency.

SUMMARY

In summary, the total Fiscal Year 1997 Southwestern Division program is $342,635,000 and consists of: the request of $332,556,000 in Federal funds, including Inland Waterway Trust funds; and scheduled local sponsor cash contributions of $10,079,000. These funds will help in solving some of the problems and meet some of the high priority water resource needs of the area.

U. S. ARMY CORPS OF ENGINEERS
CIVIL WORKS PROGRAM

CONGRESSIONAL SUBMISSION
FISCAL YEAR 1997

SOUTHWESTERN DIVISION

Budgetary information will not be released outside the Department of the Army until 18 March 1996.

SOUTHWESTERN DIVISION

Table of Contents

	Page No.
SURVEYS	
Alpine, Texas	7
Colonias Along U.S. - Mexico Border, Texas	13
Corpus Christi Ship Channel, Texas	3
Cypress Valley Watershed, Texas	14
Grand (Neosho) River, Kansas	11
Gulf Intracoastal Waterway - High Island to Brazos River, Texas	18
May Branch, Fort Smith, Arkansas	5
Northwest El Paso, Texas	2
Pecan Bayou, Brownwood, Texas	8
Plainview, Brazos River Basin, Texas	16
Rio Chama, Abiquiu Dam to Espanola, New Mexico	12
Upper Trinity River Basin, Texas	9
PRECONSTRUCTION ENGINEERING AND DESIGN	
Brays Bayou, Houston, Texas	27
Cypress Creek, Houston, Texas	29
Dallas Floodway Extension, Trinity River, Texas	31
Graham, Texas (Brazos River Basin)	20
Greens Bayou, Houston, Texas	33
Gulf Intracoastal Waterway - Aransas National Wildlife Refuge, Texas	22
Houston - Galveston Navigation Channels, Texas	23
Neches River and Tributaries, Saltwater Barrier, Texas	25
Las Cruces, El Paso and Vicinity, New Mexico	26
South Main Channel, Texas	35

23-577 96 - 54

Justification of Estimate for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

SOUTHWESTERN DIVISION

Table of Contents

	Page No.
CONSTRUCTION	
Abiquiu Dam Emergency Gates, New Mexico	125
Acequias Irrigation System, New Mexico	129
Alamogordo, New Mexico	70
Alamosa, Colorado	57
Arkansas City, Kansas	62
Beals Creek, Big Spring, Texas	95
Channel to Victoria, Texas	37
Clear Creek, Texas	100
Dardanelle Lock and Dam, (Powerhouse) Arkansas (Major Rehabilitation)	173
El Paso, Texas	105
Fry Creeks, Bixby, Oklahoma	86
Galisteo Dam, New Mexico (Dam Safety)	145
Gulf Intracoastal Waterway - Sargent Beach, Texas	42
McClellan-Kerr Arkansas River Navigation System, Locks and Dams, Arkansas and Oklahoma	46
McGrath Creek, Wichita Falls, Texas	110
Middle Rio Grande Flood Protection, Bernalillo to Belen, New Mexico	75
Mingo Creek, Tulsa, Oklahoma	90
Montgomery Point Lock and Dam, Arkansas	52
Ray Roberts Lake, Texas	134
Red River Basin Chloride Control, Texas and Oklahoma	140
Rio Grande Floodway, San Acacia to Bosque del Apache, New Mexico	81
Sam Rayburn Dam and Reservoir, Texas (Dam Safety)	149

SOUTHWESTERN DIVISION

Table of Contents

	Page No.
CONSTRUCTION (Continued)	
San Antonio Channel Improvement, Texas	114
Sims Bayou, Houston, Texas	119
Table Rock Lake, Missouri and Arkansas (Dam Safety)	164
Tenkiller Ferry Lake, Oklahoma (Dam Safety)	169
Two Rivers Dam, New Mexico (Dam Safety)	154
Waco Lake, Texas (Dam Safety)	159
Winfield, Kansas	66
OPERATION AND MAINTENANCE	177

Justification of Estimate for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997
SUMMARY, SOUTHWESTERN DIVISION

	FY 1996 Allocation	FY 1997 Request	Increase or Decrease
General Investigations			
Surveys	$ 2,417,000	$ 4,162,000	$ + 1,745,000
Preconstruction Engineering and Design	3,773,000	7,484,000	+ 3,711,000
Subtotal General Investigations	(6,190,000)	(11,646,000)	(+ 5,456,000)
Construction, General			
Construction	66,948,000 1/	78,650,000 2/	+ 11,702,000
Major Rehabilitation	2,203,000	6,000,000	+ 3,797,000
Dam Safety Assurance	10,639,000	3,050,000	- 7,589,000
Subtotal Construction, General	(79,790,000)	(87,700,000)	(+ 7,910,000)
Operation and Maintenance			
Project Operation	115,524,000	117,548,000	+ 2,024,000
Project Maintenance	118,546,000	115,662,000	- 2,884,000
Subtotal Operation and Maintenance	(234,070,000)	(233,210,000)	(- 860,000)
GRAND TOTAL, SOUTHWESTERN DIVISION	$ 320,050,000	$ 332,556,000	$ + 12,506,000

1/ Includes $8,921,000 to be derived from the Inland Waterway Trust Fund in FY 1996.
2/ Includes $10,702,500 to be derived from the Inland Waterway Trust Fund in FY 1997.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$
1. SURVEYS - NEW					
a. Navigation Studies: None.					
b. Flood Damage Prevention Studies:					
Texas					
Northwest El Paso	400,000	0	0	300,000	100,000

The study area is located in the northwest section of El Paso, Texas, north of the recently completed flood control improvements. El Paso is in far west Texas and has a population of 515,000. The current population in the study area is about 5,000 and is expected to increase to over 40,000 by the year 2015. The study purpose is to determine the Federal interest in providing a flood control project to protect the northwest area of El Paso, Texas. Recent rapid development in this area of the City has increased the potential for flooding and related problems. There are approximately 2,000 residences and numerous commercial and industrial structures within the 3,000 acres that are subject to flooding. Intense summer thunderstorms on the west side of the Franklin Mountains causes high flows in several unnamed arroyos that enter the Rio Grande valley. There is no existing outlet in the valley to convey the flood flows to the Rio Grande. Development has encroached on the arroyos and substantial ponding of flood waters occurs. On 25 September 1987, flows resulting from thunderstorms on the 12.4 square mile drainage area flooded several areas in the northwest section of El Paso and caused over $400,000 damage. Based upon a peak flood of 7000 cfs measured at the El Paso gage on the Rio Grande, the flood was estimated to be about a ten year frequency event. Potential solutions to the flooding problem include detention dams, diversion structures, and non-structural alternatives. The mayor of El Paso, in a letter dated May 1993, has requested that the Corps investigate flood problems in the northwest section of the City. The local sponsor understands the cost sharing requirements for the potential feasibility and construction phases of the project and is willing to participate. Funds in Fiscal Year 1997 will be used to determine the extent and frequency of flooding within the study area. Analysis will be performed to determine if feasible alternatives exist, and if there is a Federal interest in those alternatives. The reconnaissance study is scheduled to be completed in March 1998, which is 12 months after initiating the study.

Study	Total Estimated Federal Cost $	Allocation Prior To FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional To Complete After FY 1997 $

c. Shoreline Protection Studies: None.

d. Special Studies: None.

e. Comprehensive Studies: None.

f. Project Review Studies: None.

2. SURVEYS - CONTINUING

a. Navigation Studies:

Texas

Corpus Christi Ship Channel	5,171,000	436,000	0	100,000	4,635,000

The Corpus Christi Ship Channel is a Federally constructed deep-draft navigation project serving the ports at Harbor Island, Ingleside, and Corpus Christi in Nueces County. The existing project consists of approximately 40 miles of channels; a jettied entrance channel 45 to 47 feet deep and 600 to 700 feet wide from the Gulf of Mexico; the Corpus Christi Ship Channel with a depth of 45 feet and a width of 400 feet; and a branch channel referred to as the La Quinta Channel with a depth of 45 feet and a width of 300 feet. Tonnage transported on the Corpus Christi Ship Channel totaled approximately 60 million tons in 1993 and averaged that amount over the past five years. Local interests desire that the existing channel to Corpus Christi be deepened to 50 feet or greater for use by larger vessels, resulting in more efficient movement of commodities and, therefore, decreased shipping costs. The existing 45-foot project was designed to accommodate 59,000 dead weight ton (DWT) vessels with a loaded draft of 41 feet. Large vessels, 100,000 DWT and greater, regularly use the channel. These larger vessels could be loaded to greater depths, offering substantial reductions in vessel operating costs if additional channel depth was available. The major commodity to be shipped on this waterway is crude oil. The reconnaissance study was initiated in September 1993 and a Reconnaissance Report was completed in September 1994 and certified in May 1995. The project study plan is anticipated to be certified early in 1996. The reconnaissance study evaluated potential port commerce, transportation savings, construction costs, and dredged material disposal options and required complex economic considerations involving international grain and crude oil projections as well as the assessment of potential environmental impacts in a sensitive estuarine system. The reconnaissance study has demonstrated that deepening the project to 50 feet is economically justified. Construction of this alternative would cost about $152 million

1700

Study	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$

Texas (Continued)

Corpus Christi Ship Channel (Continued)

and produce a benefit-cost ratio of 2.5. Benefits generated by this project are high priority, commercial navigation benefits which are in accord with current administration policy. The local sponsor for the study is the Port of Corpus Christi Authority. A letter was received from the local sponsor in September 1994 indicating their continued interest in the study and their willingness to cost share future studies and other requirements of the Water Resources Development Act of 1986 concerning navigation projects with depths in excess of 45 feet. Final negotiations on the Feasibility Cost Sharing Agreement were placed on hold, at the request of the local sponsor, pending disposition of the safe harbor initiative.

After execution of the Feasibility Cost-Sharing Agreement, Fiscal Year 1997 funds will be used to continue into the Feasibility Phase of the study. The preliminary estimated cost of the feasibility phase is $9,470,000 which will be shared on a 50-50 percent basis by the Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	9,906,000
Reconnaissance Phase (Federal)	436,000
Feasibility Phase (Federal)	4,735,000
Feasibility Phase (non-Federal)	4,735,000

The completion date for the Feasibility phase of this study is currently being determined.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$
b. Flood Damage Prevention Studies:					
Arkansas					
May Branch, Fort Smith	740,000	0	185,000	265,000	290,000

The stream known as May Branch lies entirely within the city limits of Fort Smith, Arkansas, which has a population of 73,000. The drainage area of May Branch is 5.3 square miles. May Branch starts out as an open channel that flows into a covered conduit storm sewer, constructed in 1910, which ends at the P Street pumping station, constructed by the Corps in 1948, that has an outlet through the Fort Smith Levee into the Arkansas River. The storm sewer was generally adequate until the 1930's when increased urbanization resulted in the runoff routinely exceeding the capacity of the storm sewer, the only outlet for the basin. Flood runoff flows overland until it eventually ponds behind the levee until evacuated. Average annual flood damages in the May Branch Basin are estimated at $5,840,000. During the spring of 1990, an estimated 26 commercial and 44 residential units were inundated by an approximate 50-year flood event which caused an estimated $2.5 million in damages. Numerous floods have occurred previous to the May 1990 event including the flood of August 1971. Alternative plans to be investigated to alleviate the flooding include: a two-mile long tunnel under the downtown section of Fort Smith, channel widening, pump stations, detention basins, parallel storm sewers, and additional relief openings through the levee. The May Branch reconnaissance study was initiated under Section 205 of the Flood Control Act of 1948, as amended, under the Continuing Authorities Program. Because the scope and complexities of the flood problems were determined to be beyond the limits of a Section 205 study, the May Branch study was incorporated into the Arkansas River Wetlands and Flood Control reconnaissance study. This reconnaissance study investigated both the flooding problems and restoration of fish and wildlife resources, which are both in accord with Administration policy. The reconnaissance report recommended that the identified restoration projects be pursued under Section 1135 of the Water Resources Development Act of 1986. Also, the report recommended Federal participation in feasibility studies for flood control in the May Branch area of Fort Smith, Arkansas. The city of Fort Smith, Arkansas, will be the sponsor for the May Branch feasibility study and project. The Feasibility Cost-Sharing Agreement (FCSA) is scheduled for signing in June 1996. Representatives of the city of Fort Smith delayed the start of the May Branch feasibility phase because of concerns on the cost of the construction claim on another Corps cost-shared Section 205 project, Mill Creek. The Mill Creek construction claim has not been settled, but citizens of the city voted in October 1995 to continue a one percent sales tax to fund this type of work, and therefore negotiations of the FCSA have resumed.

1702

Study	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$

Arkansas (Continued)

May Branch, Fort Smith (Continued)

Fiscal Year 1996 funds are being used to continue into the feasibility phase of the study as the reconnaissance report was certified to be in accord with policy. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,480,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,480,000
Reconnaissance Phase (Federal)	*
Feasibility Phase (Federal)	740,000
Feasibility Phase (Non-Federal)	740,000

*This work was performed under the Section 205 Continuing Authorities Program and subsequently combined with the Arkansas River Wetlands and Flood Control, Arkansas, reconnaissance study.

The reconnaissance phase is scheduled for completion in June 1996. The schedule for completion of the feasibility study is currently being determined.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$
Texas					
Alpine	400,000	0	222,000	178,000	0

The study area is located in Alpine, Texas, the county seat of Brewster County, at an elevation of 4,500 feet in the semiarid Big Bend region of Texas, about 190 miles southeast of El Paso. Alpine has an estimated 1990 population of 7,000. The study purpose is to determine the Federal interest in providing a flood control project to protect the city of Alpine from flooding from three drainage areas: Paisano Creek in the northwest section of the City, Alpine Creek in the central area, and West Moss Creek in the eastern section of the City. There are approximately 500 homes and numerous commercial and public buildings, with a value estimated in excess of $80 million, located within the SPF floodplains of the three drainage areas. The SPF floodplains encompass about 3,700 acres. Historical floods occurred in Alpine in 1932, 1935, 1950, 1956, and 1958. More recently, the community experienced floods in 1974, 1977, 1983, 1986, and 1992. The 1986 flood claimed two lives and caused approximately $500,000 in damages. The Alpine Creek flash flood of June 13, 1992 resulted in $200,000 in damages. The city of Alpine has asked the Corps of Engineers, by letter dated 23 January 1995, to initiate a study of the drainages surrounding Alpine under the Corp's General Investigation Program. A review survey of the Alpine area, completed in 1971, identified a feasible multipurpose reservoir project that was authorized for construction in 1974; however, at that time local interests were unable to provide the required easements due to resistance from owners of large ranches unwilling to divide their land holdings. The project was deauthorized in January 1990. Many of the landowners have now subdivided their large ranches into smaller parcels, thereby facilitating real estate acquisition. The reconnaissance phase will review the 1971 findings, determine if the flood problems in Alpine are significant, and establish if a Federal interest exists in their solution. Possible solutions include channel modifications and detention structures. Non-structural solutions will also be investigated during the reconnaissance study. The non-Federal sponsor, the city of Alpine, understands the cost sharing requirements, and is willing to share equally in the potential feasibility phase of the study. The community will consider the relocations and floodplain evacuation necessary to improve channel capacity and is willing to accept less than a 100-year level of protection. The reconnaissance study is scheduled to be completed in March 1997, which is 12 months after initiating the study.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$
Texas (Continued)					
Pecan Bayou, Brownwood	888,000	550,000	111,000	140,000	87,000

Pecan Bayou, a major tributary to the Colorado River, is located in Callahan, Coleman, and Brown Counties of Texas. Major flood damage centers along the bayou include Lake Brownwood and the city of Brownwood. The flood of April-May 1990, the worst in Brownwood's history, caused two deaths and forced the evacuation of hundreds from their homes. Flood damages totaled over $10 million within the city, with a substantial amount of damages around Lake Brownwood as well. A second flood occurred in December 1991. Damages were somewhat less than those of the 1990 flood within the city; 213 residences and 40 businesses are known to have incurred damage as a result of flood inundation. However, the flooding of residences around Lake Brownwood was greater than the previous flood, with flooding depths averaging 12-15 inches higher. Pecan Bayou Lake, Texas, a multipurpose project authorized by the Flood Control Act of 1968, was reevaluated during the reconnaissance study. It was found to lack sufficient flood inundation reduction benefits to justify the authorized project and thus will not be further considered. Instead, two channel modification projects within the city of Brownwood were found to be in the Federal interest, and were recommended for further detailed study. One project extends along Pecan Bayou from U.S. 377 downstream for a distance of approximately 7,500 feet. The second project is located along Willis Creek, a major tributary, from near the confluence with Pecan Bayou to a point approximately 18,500 feet upstream. Collectively, these two projects would reduce the average annual flood damages in Brownwood by approximately $1.5 million. The city of Brownwood has most recently expressed their support for the feasibility study by letter dated March 23, 1994. The Feasibility Cost-Sharing Agreement was signed 31 January 1995. Initiation of the feasibility study was postponed pending resolution of new flood control cost sharing policies. The feasibility study is currently scheduled to be initiated in April 1996.

Fiscal Year 1996 funds are being used to continue into the feasibility phase of the study which is being shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase of the study. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$1,226,000
Reconnaissance Phase (Federal)	550,000
Feasibility Phase (Federal)	338,000
Feasibility Phase (Non Federal)	338,000

The Reconnaissance Phase was completed in January 1995. The completion date for the feasibility study is currently being determined.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$
Texas (Continued)					
Upper Trinity River Basin	8,235,000	4,295,000	283,000	1,230,000	2,427,000

The Upper Trinity River basin extends upstream from the confluence of the East Fork and the mainstem of the Trinity River, has a drainage area of approximately 8,100 square miles and includes the Dallas-Fort Worth, Texas, Metroplex. This area had an estimated population in 1990 of over 3.9 million. Given that development of the Metroplex has exceeded expectations and the magnitude of storm runoff has increased beyond the original values used in design of the existing floodway projects, the capacity of these existing floodway projects have been significantly reduced. More importantly, current and proposed development trends within the Dallas-Fort Worth Metroplex stand to further worsen existing flooding potential. It is estimated that in the event of the Standard Project Flood, approximately 87,700 acres of flood plain properties within the Dallas-Fort Worth Metroplex would be inundated, resulting in an estimated $13.7 billion in damages. Major floods occurred May-June 1989 and in April-May 1990. In the April-May 1990, floods over $300 million in flood damages occurred and three lives were lost. Within the study area, flooding during December 1991/January 1992 resulted in 9 deaths, over 200 homes and 12 businesses inundated, and millions of dollars in damages. Existing flood control projects in the Upper Trinity River Basin prevented a total estimated $318 million in damages in 1989 and $4 billion in 1990. In 1990, all of the Corps lakes in the Upper Trinity River Basin were either close to the top of or overflowing the spillway. This subject basin study is addressing improvements in the interest of flood protection, environmental restoration, water quality, recreation, and other allied purposes in the Upper Trinity River Basin with specific attention on the Dallas-Fort Worth Metroplex. The feasibility study has currently identified over 80 potential projects that show promise for economic feasibility during the upcoming plan formulation and benefit-to-cost analyses. At this time, no recommended plan (which would contain several of these potential projects) has been identified. The North Central Texas Council of Governments is the local sponsor representing nine communities, three counties, and the Tarrant County Water Control and Improvement District No 1. The Trinity River Authority, the Trinity Improvement Association and the state of Texas also support the study. The Feasibility Cost-Sharing Agreement was signed 29 August 1990 and revised with Supplement Number one dated 1 August 1991.

Fiscal Year 1996 funds are being used to continue the feasibility phase of the study. The funds requested for Fiscal Year 1997 will be used to continue feasibility studies on high priority, flood control and enviromental restoration projects within the reaches of the existing Dallas and Fort Worth floodways. The estimated cost of the feasibility phase is $14.85 million which is being shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of study cost sharing is as follows:

1706

Study	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$

Texas (Continued)

Upper Trinity River Basin (Continued)

Total Estimated Study Cost	$15,660,000
Reconnaissance Phase (Federal)	810,000
Feasibility Phase (Federal)	7,425,000
Feasibility Phase (non-Federal)	7,425,000

The reconnaissance phase was completed in August 1990. The completion date for the feasibility study is currently being determined.

1707

Study	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$

c. Shoreline Protection Studies: None.

d. Special Studies:

Kansas

Grand (Neosho) River	500,000	0	371,000	129,000	0

Grand Lake is located in northeastern Oklahoma, with major tributaries in Kansas and Missouri. Grand Lake was designed and constructed by the Grand River Dam Authority (GRDA), an agency of the state of Oklahoma; construction was completed in 1940 and the lake became operational in 1941. The project is currently jointly operated by GRDA for hydropower and by the Corps of Engineers for flood control. There are 6 reservoirs in the Grand (Neosho) River Basin which provide flood control, recreation, hydropower and other water resource benefits. Three of the projects are in the lower basin in Oklahoma and three are in the upper basin in Kansas. Two of the lower basin projects are jointly operated with the Grand River Dam Authority. Landowners between John Redmond Dam in Kansas and Grand Lake have repeatedly asserted their belief that their lands are flooded as a result of Corps operational procedures. The Energy and Water Development Appropriations Act of 1996 included $500,000 to "...initiate a study of the backwater effects of flood control operations along the Grand (Neosho) River in Kansas, as far north as John Redmond Reservoir. Particular emphasis is to be given to the effect of flood pool levels on the extent and duration of flooding north of the Miami, Oklahoma reach. To the greatest extent possible, the Corps should make use of already available U.S. Geological Survey (USGS) maps of the Grand (Neosho) River basin. The Corps shall keep interested parties informed of its activities and progress on a regular basis." The scope of studies will include analyses to determine the cause, or causes, of flood problems in Kansas and evaluation of the impacts of operation of Grand Lake and the upper Grand (Neosho) River system. The level of detail for the backwater study will be commensurate with available USGS mapping and will determine the approximate limits of Grand Lake backwater impacts. The study will not include an evaluation of major structural flood control alternatives in Kansas. The study is scheduled to be completed in December 1996, which is 12 months after initiation.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$
New Mexico					
Rio Chama, Abiquiu Dam to Espanola	1,000,000	168,000	232,000	150,000	450,000

The study area is located in Rio Arriba county in northern New Mexico in the Rio Chama drainage area from Abiquiu Dam to the confluence of the Rio Chama and the Rio Grande, a reach of approximately 31 miles. The Rio Chama watershed covers 3,159 square miles of which 2,146 are controlled by Abiquiu Dam. Grazing and commercial timber comprise approximately 96 percent of the total Rio Arriba county area. Grazing and agriculture are the principal land uses at Abiquiu Dam and the lower Rio Chama Valley. During the past several years, it has become increasingly difficult to make water deliveries in accordance with the Rio Grande Compact because of decreased Rio Chama channel capacity and bank erosion. Flow volume in excess of 200% of normal entered the Abiquiu reservoir in 1978, 1980, 1985, 1986 and 1987. During this same period the downstream channel has lost at about 30% of its capacity due to erosion and deposition. If the channel capacity continues to decrease, the releases from Abiquiu mandated by treaty with Mexico and by the Rio Grande Compact will cause flood and erosion damages between Abiquiu and Española, NM. Flooding occurs now when local thunderstorms add to the mandatory releases. The investigation will evaluate flood control, erosion prevention, and potential changes in the operation of Abiquiu Dam to restore ecosystem function and values, and ensure required water deliveries. The New Mexico Interstate Stream Commission and Rio Arriba County residents have expressed support for this study. The Interstate Stream Commission understands the cost-sharing requirements for feasibility studies and potential construction projects and has expressed a willingness to participate in further studies.

Fiscal Year 1996 funds are being used to fully fund the reconnaissance phase at full Federal expense. If the reconnaissance report is certified to be in accord with policy, the funds requested for Fiscal Year 1997 will be used to initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,200,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,600,000
Reconnaissance Phase (Federal)	400,000
Feasibility Phase (Federal)	600,000
Feasibility Phase (Non-Federal)	600,000

The reconnaissance phase is scheduled for completion in January 1997. The completion date for the feasibility study is currently being determined.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$
Texas					
Colonias Along U.S. - Mexico Border	614,000	72,000	222,000	320,000	0

Rapid population growth has occurred with little or no wastewater or water supply infrastructure development. Colonias (or barrios) are extremely poor, unincorporated communities located within 100 kilometers of the U.S. - Mexico border. In the colonias surrounding El Paso, Texas, water and sewer services are limited. The local utility companies have placed priority on potable water distribution with secondary emphasis on central wastewater collection and treatment. In the colonias, most residents use septic tanks or cesspools for sewage disposal. After many years of use, and with very little sewage disposal regulatory enforcement, septic tanks are failing and causing groundwater contamination or introducing raw sewage directly into the Rio Grande. Without the development of infrastructure, groundwater contamination, health risks, and other environmental, social, and economic problems will continue to increase within the study area.

Albuquerque District is providing water-related environmental infrastructure planning and technical assistance for three colonias, located near El Paso, Texas, under the authority of Section 219 of the 1992 Water Resources Development Act. The Project Cooperation Agreement for Colonias Del Paso and Ascencion was executed in August 1995, and is fully funded. The Project Cooperation Agreement for providing technical assistance for design of the Canutillo water distribution and wastewater collection project is scheduled to be executed in April 1996. The Corps of Engineers will award an A-E design services contract to develop plans and specifications for the Canutillo project, and will provide contract management and technical assistance using in-house labor. The project sponsor, the El Paso Water Utilities Public Service Board, reaffirmed support for the project in a letter dated 13 October 1995.

Fiscal Year 1996 funds are being used to develop the scope of work and cost estimate, prepare the Environmental Infrastructure Study Agreement, advertise and award the A-E contract, and initiate design. Fiscal Year 1997 funds will be used to complete the design activities. The preliminary estimated cost for providing technical assistance for these three colonias is $792,000, which is to be shared on a 75-25 percent basis by Federal and non-Federal interest. A summary of the cost sharing is as follows:

Total Estimated Study Cost	$ 812,000
Initial Scoping (Federal)	20,000
Technical Assistance (Federal)	594,000
Technical Assistance (Non-Federal)	198,000

Technical assistance for these three projects is scheduled to be completed in September 1997.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$
Texas (Continued)					
Cypress Valley Watershed	1,951,000	970,000	37,000	50,000	894,000

The study area is inclusive of the Cypress Bayou Basin in Harrison, Gregg, Marion, Cass, Morris, Titus, Franklin, Wood and Upshur Counties in Texas and Caddo Parish in Louisiana. It includes the watersheds of Big, Little, and Black Cypress Bayous and their tributaries. The study provides an opportunity to apply a broad based watershed management approach, with close coordination with Texas Parks and Wildlife Department, to investigate the Cypress Bayou Basin's existing and future water resources problems and needs. This approach will entail addressing flood control, water quality, environmental (protection/restoration/management), and recreation in a comprehensive manner. Ferrells Bridge Dam - Lake O' The Pines, the only flood control structure in the study area, located on Big Cypress Bayou, began to impound water in 1957. However, since that time, the uncontrolled tributary watersheds of the downstream Little and Black Cypress Bayous have caused flood flows to occur along Big Cypress Bayou 14 times. The most recent floods occurred in 1980, 1989, and 1990. During the May-June 1989 floods, homes, roads, and low lying areas downstream of Lake O' The Pines were flooded. As a result of the rainfall and resulting flooding two counties (Marion and Upshur) were declared Federal Disaster areas. The April-May 1990 storms again caused flooding within the basin. Releases from Lake O' The Pines were curtailed due to downstream flooding for a period of three weeks. Water quality for the streams within the basin are generally considered to be good. However, dissolved oxygen deficits have occurred in some reaches of the stream. Currently, the low dissolved oxygen concentrations are caused by point source wastewater discharges, sluggish stream velocities, and low reaeration rates. The study addressed watershed management issues including the impacts of future development on the hydrology of the watershed, water quality, and cultural and fish and wildlife resources, the ability of the water resources to meet the needs of future development, and restoration of the historic Port of Jefferson. The reconnaissance study identified; regional needs for public access to Cypress Bayou and Caddo Lake, 21 opportunities for environmental restoration/preservation, restoration of the historic Port of Jefferson, various economic development activities, a flood reduction project at Caddo, levee restoration in Jefferson, streambank erosion protection of a historic structure and development of a working Geographical Information System database. To date, a local sponsor has not been determined for any of these potential projects.

If the reconnaissance report is certified to be in accord with policy, the funds requested for Fiscal Year 1996 will be used to continue into the feasibility phase of the study. The Fiscal Year 1997 funds will be used to continue the Feasibility Phase of the study. The preliminary estimated cost of the feasibility phase is $1,962,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

1711

Study	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$

Texas (Continued)

Cypress Valley Watershed (Continued)

Total Estimated Study Cost	$2,932,000
Reconnaissance Phase (Federal)	970,000
Feasibility Phase (Federal)	981,000
Feasibility Phase (Non-Federal)	981,000

The reconnaissance phase is scheduled for completion in April 1996. The completion date for the feasibility study is currently being determined.

1712

Study	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$
Texas (Continued)					
Plainview, Brazos River Basin	773,000	443,000	30,000	100,000	200,000

The study area is located in Plainview, Hale County, Texas and its environs. The study area includes Running Water Draw and several playa lakes. The headwaters of Running Water Draw are located in the eastern edge of New Mexico near Clovis, from whence it flows southeasterly into the state of Texas. It traverses the southern portion of the city of Plainview on a course to its confluence with the White River and subsequent confluence with the Salt Fork of the Brazos River. The playa lakes are located on the north edge of the city. Storm flows originating north of the city flow through the playas and pass unrestrained through the eastern portion of the city, emptying into Running Water Draw east of the city. The watershed for Running Water Draw has a drainage area of 1,291 square miles, an overall length of 110 miles, and an average width of 12 miles. The watershed for the playa lakes contains approximately 22.6 square miles with an overall length of 6 miles and an average width of 4 miles. Plainview has an estimated population (1990) of 21,700 and has experienced severe loss of physical property and injuries to its residents as a result of flooding along Running Water Draw and outflows from the playa lakes. Significant flooding has occurred in Plainview in 1941, 1951, 1960, 1965, 1975, 1977, and 1985. As a result of the 1960 flood, a study was performed and recommended a multi-agency plan consisting of seven upstream Soil Conservation Service (SCS) reservoirs on Running Water Draw, and a Corps channel improvement on both Running Water Draw and the playa lakes in the city. This plan was authorized by Section 201 of Public Law 89-298 in December 1970. Phase I GDM studies completed in 1977 revealed that, with the seven SCS reservoirs having been constructed, the Corps channel was no longer economically justified as a last added element. This project was deauthorized by PL 99-662 in November 1986. Subsequently, floodplain studies performed by the Federal Emergency Management Agency indicated that new development within the city had increased the flood hazard there. A Reconnaissance Study was initiated in 1994 and although it concluded that flood control improvements along the Draw and the playa lakes in the area were not economically feasible, it did identify significant needs for ecosystem restoration. A plan for restoring environmental restoration was investigated and deemed warranted. The plan includes construction of a series of wetland areas along Running Water Draw to reestablish aquatic, wildlife and vegetative habitats. To insure a permanent water supply for the wetland pools, the city would pump water from its wastewater treatment plant upstream 7 miles to a holding pond where additional wetlands would improve the quality of the water. The discharge from this pond into the Draw will provide continuous flows through the wetlands below. Additionally, recreation improvements such as trails and picnic facilities could be incorporated along this corridor. The project would also restore and develop more habitat for migratory waterfowl, shore birds, wading birds and birds of prey while improving the water quality within the stream. In a letter dated 24 August 1995, the city of Plainview has indicated its support of the ecosystem restoration and indicated its willingness to cost share in the feasibility phase.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$

Texas (Continued)

Plainview, Brazos River Basin (Continued)

Fiscal Year 1996 funds are being used to complete the reconnaissance phase at full Federal expense. If the reconnaissance report is certified to be in accordance with policy, the funds requested for Fiscal Year 1997 will be used to continue into the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $600,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimate Study Cost	$ 1,073,000
Reconnaissance Phase (Federal)	473,000
Feasibility Phase (Federal)	300,000
Feasibility Phase (non-Federal)	300,000

The reconnaissance phase is scheduled to be completed in September 1996. The completion date for the feasibility study is currently being determined.

1714

Study	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$

e. Comprehensive Studies: None.

f. Project Review Studies:

Texas

Gulf Intracoastal Waterway - High Island to Brazos River	3,720,000	380,000	222,000	1,200,000	1,918,000

The study area includes approximately 85 miles of the Gulf Intracoastal Waterway (GIWW) in Galveston and Brazoria Counties, from High Island, Texas, to the Brazos River. Tonnage transported along this section of the GIWW totaled nearly 50 million tons in 1994, with petro-chemicals as the major commodity shipped. This study will evaluate operational problems along this reach of the GIWW. Some of the problems identified by users along this reach include difficulties in negotiating two 90-degree bends near High Island; difficulties accessing the Texas City Channel from the GIWW; difficulties negotiating a double ess curve near Freeport; deficiencies in mooring facilities and channel markers; and developing long range disposal plans for any required corrections. The reconnaissance study objectives were to determine if there was a Federal interest in pursuing detailed analyses and solutions to these problems and to identify the scope and cost of the feasibility study phase. The State of Texas is the non-Federal sponsor of the GIWW and continues to maintain a high interest in the waterway because of their responsibility to provide dredged material disposal areas. The State's interest is evident through monthly meetings of the State-chaired Gulf Intracoastal Waterway Advisory Committee. The GIWW is designated as part of the Nation's Inland Waterway System, and therefore, qualifies for 50-50 cost sharing from the Inland Waterways Trust Fund for construction purposes. An initial appraisal of the entire 423-mile Texas Section of the GIWW was completed in November 1989.

The reconnaissance study, completed in February 1995, concluded that modifications to the existing GIWW were economically feasible from reduction in delay benefits. These modifications consisted of bend easing in the High Island area ($1.3 million), shoaling reductions at Rollover Bay ($1.0 million), turn improvements into the Texas City Channel ($2.7 million), Pelican Cut and Galveston Channel moorings ($1.7 million), entrance approach changes for the Galveston Causeway Railroad Bridge ($0.4 million), and bend easing /realignment near Freeport ($1.0 million). This resulted in an overall benefit/cost ratio in excess of 30. The reconnaissance report was certified to be in accord with policy on 12 June 1995. The Project Study Plan is expected to be certified early in 1996 with the feasibility phase beginning immediately. Fiscal Year 1996 study funds are being used to continue the fully Federally funded feasibility phase of the study. Study efforts include

1715

Project	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$

Texas (Continued)

Gulf Intracoastal Waterway -
High Island to Brazos River (Continued)

the determination of the problems and opportunities in the study area, public involvement activities and coordination with resource agencies, and formulation of conceptual plans. It is anticipated that an additional $140,000 from the Operation and Maintenance appropriation will be used in Fiscal Year 1996 to initiate preparation of a long-term dredge material management plan for the existing project and also evaluate the possible need to modify the existing Environmental Impact Statement (EIS).

Fiscal Year 1997 funds will be used to continue the feasibility study. The preliminary estimated cost to be funded by the General Investigations appropriation is $3,720,000 ($380,000 Reconnaissance and $3,340,000 Feasibility). An additional $3,880,000 ($140,000 Reconnaissance and $3,740,000 Feasibility) will be provided from the Operation and Maintenance, General Appropriation to continue preparation of a long-term dredged material management plan and evaluation of the existing Environmental Impact Statement. The feasibility study will be 100 percent Federally-funded.

An initial appraisal of the entire 423-mile Texas Section of the GIWW was completed in November 1989. The reconnaissance phase is scheduled to be completed and the feasibility phase will be initiated after certification of the Project Survey Plan (PSP) in the 2nd quarter of FY 96. The completion date for the feasibility study is currently being determined.

Project	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$
3. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - NEW					
a. Navigation: None.					
b. Flood Control:					
Texas					
Graham, Texas (Brazos River Basin)	150,000	0	0	50,000	100,000

The project area is located in Graham, Young County, Texas. Graham experiences both backwater effect flooding from the Brazos River as it enters the headwaters of Possum Kingdom Reservoir (non-Federal) as well as creek flooding inside the city along Salt Creek. The watershed for the Brazos River, above its confluence with Salt Creek, has a drainage area of 22,673 square miles, an overall length of 280 miles, and an average width of 80 miles. The watershed for Salt Creek, above Graham, has a drainage area of 275 square miles, an overall length of 25 miles, and an average width of 11 miles. Graham had an estimated 1990 population of 9,000 and has experienced loss of physical property and injuries to flood victims as a result of flooding. Since 1972, eight significant floods have occurred in Graham. The most damage was attributable to the storm event of 1-3 August 1978 when 32.5 inches of rain fell in the Brazos River Basin near the city. This flood caused extensive backwater into the city, resulting in one-third of the city being under water. The existing value of structures within the 100-year floodplain in Graham is approximately $17 million. Local interests desire improvements to reduce the threat of future damage in Graham from floods of the Brazos River and Salt Creek. The current plan differs from the project identified in the reconnaissance report, which established a Federal interest in conducting the cost-shared Feasibility study. The identified plan is estimated to cost $5 million with an estimated Federal cost of $3.7 million and an estimated non-Federal cost of $1.3 million. The current plan includes a buy-out of 125 structures within the 10-year flood plain in the city of Graham, Texas; install a flood warning system to protect residents above the buy-out zone; create recreational areas consisting of a trail, picnic sites, and park road; and environmental restoration of the pro ect lands with native vegetation. The environmental restoration will restore habitat for song birds and migratory wading birds. The average annual benefits amount to $482,000 ($303,000 for flood control and $179,000 for recreation). The benefit-cost ratio is 1.16 to 1 at 1 October 1994 price levels and an interest rate of 8 percent. The Feasibility Cost Sharing Agreement was signed with the Brazos River Authority on March 25, 1993, in a ceremony in Graham, Texas. The city of Graham strongly supports the current planned project.

Project	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$

Texas (Continued)

Graham, Texas (Brazos River Basin) (Continued)

The project is not authorized for construction. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to pay 25 percent or $1,186,000, of the total project cost for non-structural flood control measures; and pay one-half or $114,000, of the separable costs allocated to recreation.

The feasibility study is scheduled for completion in November 1996 with Fiscal Year 1995 carryover funds. Funds for Fiscal Year 1997 will be used to initiate plans and specifications. Preconstruction Engineering and Design (PED) will be financed 75 percent Federal and 25 percent non-Federal. The schedule for completion of PED is currently being determined.

c. Shoreline Protection: None.

d. Special Studies: None.

Project	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$
4. PRECONSTRUCTION ENGINEERING AND DESIGN (PED) - CONTINUING					
a. Navigation:					
Texas					
Gulf Intercoastal Waterway - Aransas National Wildlife Refuge	1,575,000	162,000	556,000	857,000	0

The Aransas National Wildlife Refuge is a 31-mile reach of the Gulf Intracoastal Waterway (GIWW) which crosses the critical wintering habitat of the rare and endangered whooping crane, including a 13.25-mile reach within the boundary of the Aransas National Wildlife Refuge (ANWR). This area is located approximately 35 miles northeast of Corpus Christi, Texas, in Aransas and Calhoun Counties. Whooping crane habitat losses of about 2 acres per year are caused by combinations of vessel traffic in the GIWW, wind generated waves, and to some extent dredged material disposal practices. This critical habitat loss adversely impacts the whooping crane, which is re-establishing itself along the Texas coast after nearing extinction in the 1940's. The importance of the GIWW to the economy of the lower Texas coast and its uninterrupted usage is also critical. Tonnage transported along this section of the GIWW totaled nearly 27 million tons in 1994, with petro-chemicals as the major commodity shipped. The recommended project is to provide bank protection for the existing alignment and to provide a spill containment system for the channel through the critical habitat. The feasibility report also displays beneficial uses of dredged material techniques to protect and create habitat for implementation through the O & M program. The total first cost of the recommended plan, based on 1 October 1995 price levels (first cost) through the construction period, is estimated at $18,283,000. Project justification is based on the significance of whooping crane habitat, compliance with the Endangered Species Act, and combined monetary and non-monetary benefits. The State of Texas is the non-Federal sponsor of the Texas section of the GIWW.

The project has not been authorized for construction. The Feasibility study is fully Federal funded. The Corps will assume responsibility for operations, maintenance, repair, rehabilitation, and replacement (OMRR&R) for the erosion control and spill containment measures. Spill response and cleanup will not be a Corps responsibility. The Texas General Land Office has offered to provide funds for the replacement of the spill containment system. The funding source for protection of critical habitat will be fully Federal. Fiscal Year 1997 funds will be used for Plans and Specification and preconstruction, engineering, and design will complete in September 1997.

Project	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$
Texas (Continued)					
Houston - Galveston Navigation Channels	19,600,000	16,353,000	965,000	1,900,000	382,000

Houston and Galveston Channels are located in the Galveston Bay system which is the largest estuarine system on the Texas Coast. The channels provide access to the principal ports of Houston and Galveston. The existing project provides 40-foot depth channels to Galveston, and to Houston as far as the Clinton Island Turning Basin and a 36-foot depth to the main Houston turning basin. The principal commodities moved on the Galveston Channel are cotton, grain, and sulfur. The principal commodities moved on the Houston Ship Channel are petroleum, chemicals, ores, grain, cotton, machinery, and general cargo. Total commerce moved on both channels averages more than 100 million tons a year.

The plan of improvement presented in the Feasibility Report for the Houston Ship Channel provided for a 50-foot deep by 600-foot wide channel to the vicinity of the Shell Oil Company Docks near Boggy Bayou in Houston. The feasibility plan of improvement for Galveston Channel provided for a 50-foot deep by 450-foot wide channel within the existing 1,100- to 1,125-foot channel. The feasibility plan of improvements called for the enlargement of the Houston Ship Channel and Galveston Channel in two phases. Phase I would enlarge the Houston Ship Channel to a depth of 45 feet and a width of 530 feet, and the Galveston Channel to a depth of 45 feet and a width of 450 feet, and deepen the Entrance Channel to 45 feet. Phase II would enlarge the Houston Ship Channel to a depth of 50 feet and a width of 600 feet, and the Galveston Channel to a depth of 50 feet and a width of 450 feet, and deepen the Entrance Channel to 50 feet. Phase II (50-foot) is not economically justified and the local sponsors will not pursue authorization of this increment. The channel was optimized as directed by higher headquarters at the In-Progress Review held on 2-3 June 1993. The optimized channel depth is 45 feet. Ship simulation study results have increased the Galveston Channel to widths which vary from 650 feet to 1,112 feet. The Houston Ship Channel will be widened to 530 feet.

The feasibility plan has been reevaluated and an environmental restoration dredged material disposal plan for Galveston Bay has been incorporated into the plan as presented in the Limited Reevaluation Report (LRR) and Supplemental Environmental Impact Statement (SEIS). Notice of availability of the Final LRR and SEIS were included in the Federal Register on 24 November 1995. The plan presented in the LRR and SEIS will utilize confined disposal areas or beneficial uses of dredged material in the bay and/or offshore disposal for construction activities and the operation and maintenance resulting from them. This plan also addresses the deepening of the existing 42-foot deep by 800-foot wide Galveston Harbor Channel to 45-47 feet deep over its original 10.5 mile length, and extending the Galveston Entrance Channel to 14.0 miles to the 47-foot bottom contour in the Gulf of Mexico along the existing alignment.

Project	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$

Texas (Continued)

Houston - Galveston Navigation Channels (Continued)

Based on the Final LRR the total project cost for the Houston-Galveston Channels, including the Galveston Entrance Channel, is estimated at $292,797,000 (1 October 1995 Price Level) (Navigation Improvements and Environmental Restoration). The benefit-to-cost ratio is 2.3 to 1 based upon the LRR. The average annual benefits for the LRR resulting from transportation savings from using larger or more efficient vessels, reduction in vessel casualties, and reduction of vessel delays are estimated at $87,300,000. The local sponsors are the Port of Houston Authority and the city of Galveston. By letters dated 1 Septemoer 1989 and 18 October 1995, the Port of Houston Authority expressed their strong support for the project. Houston and Harris County voters approved a $130 million Port of Houston bond issue on 7 November 1989, by a 63 percent to 37 percent margin. The city of Galveston expressed their support for the project by letters dated January 1987 and 30 October 1995. Both the Port of Houston and the city of Galveston have indicated ways to finance the project.

The project is not authorized but it is anticipated that this project could be considered for authorization in 1996. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to cost-share a portion of the cost of deepening and widening the channels, presently estimated in the LRR at $81,907,000 (Navigation Improvements and Environmental Restoration). These cost include the cost of preparing disposal areas; deepening berthing areas; provide associated lands, easements and rights-of-way, where necessary in the construction of the project; provide a portion of the cost of measures necessary to mitigate the project's adverse environmental impacts; and pay a portion of the costs of operation and maintenance and replacement of the project currently estimated at $1,245,000 annually. There are also $127,200,000 of associated costs paid for by the facility owners for removal of existing facilities, which include removal of docks and pipelines and deepening of the private docks.

The Final Environmental Impact Statement (FEIS) prepared during the feasibility report on the project was filed with the Environmental Protection Agency on 25 November 1988. A supplement to the FEIS has been prepared and was listed in the Federal Register on 24 November 1995.

Fiscal Year 1996 funds are being used to complete the LRR, SEIS, and prepare the Project Design Memorandum (PDM) and negotiate the Draft Project Cooperation Agreement (PCA). Fiscal Year 1997 funds will be used to complete the authorization process, review the PDM and PCA, and begin to prepare the first set of plans and specifications. A completion date is being determined for the first set of plans and specifications.

1721

Project	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$
Texas (Continued)					
Neches River and Tributaries					
Saltwater Barrier	3,000,000	1,700,000	148,000	520,000	632,000

The project is located in Jefferson and Orange Counties just north of the I-10 bridge at Beaumont, Texas on the Neches River at Bairds Bayou. Annually, the fresh water supply sources to the city of Beaumont and the Lower Neches Valley Authority are threatened by salt water intruding up the Neches River during periods of low river flow and high withdrawal rates. To avoid damages, the Lower Neches Valley Authority constructs temporary salt water barriers in the Neches River and in Pine Island Bayou. Although effective and economical, these barriers interfere with navigational use and are not acceptable long term solutions to the problem of salinity intrusion. The project as described in the Phase I General Design Memorandum, approved January 1982, provides for a tainter-gated saltwater barrier structure, a gated navigation bypass channel, an access road and levee, and an auxiliary dam across a canal which drains Bairds Bayou.

The project was authorized by the Water Resources Development Act (WRDA) of 1976, but project cost sharing will be in accordance with Section 103 C (3) of the WRDA of 1986, which specifies that agricultural water supply projects are shared at 65 percent Federal and 35 percent non-federal (inclusive of lands, easements, rights-of-way, and disposal areas). The project cost, through the period of construction (based on Fiscal Year 1993 prices), is currently estimated at $74,779,000 (first cost). The local share of the cost is $30,936,000 and private cost to relocate the Temple Island Industries effluent is estimated at $25,888,000. Total average annual benefits are $14,468,000 and the benefit-cost ratio is 2.0 to 1. The project, as described, is economically justified, environmentally sound and in the public interest.

Preconstruction planning and detailed planning for the levees and access road were completed and plans and specifications were approved in May 1984. The local sponsor, the Lower Neches Valley Authority, found the provisions required by WRDA of 1986 unacceptable and the project was recommended for placement in inactive status in October 1987. The sponsor has shown renewed interest in the project by letter dated 5 January 1994 and the local sponsor is seeking ways to finance their share of the project costs.

In FY 1996, the LRR studies will continue in order to provide a current economic analysis update, an assessment of cost sharing requirements, and to assure the recommended plan is in compliance with current Administration priorities. FY 1997 funds will be used to complete the LRR in September 1997 to determine the Federal interest in continuing Preconstruction Engineering and Design (PED).

The completion date for PED is currently being determined.

Project	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$
b. Flood Control:					
New Mexico					
Las Cruces, El Paso and Vicinity	400,000	113,000	80,000	207,000	0

The city of Las Cruces is located in the Mesilla Valley of the Rio Grande in Dona Ana County, south-central New Mexico. The City, currently populated by 62,000 people, is one of the fastest growing cities in the southwest. A serious flood problem exists in the downtown area of Las Cruces with average annual damages within the study area estimated at $5.1 million. The cost-shared feasibility study was completed in November 1995. The recommended project, estimated to cost $8,800,000 (1 October 1995 price levels) with an estimated Federal cost of $4,400,000 and an estimated non-Federal cost of $4,400,000, includes the modification and enlargement of the existing, locally constructed detention structures and the enlargement of an existing drainage channel. The recommended project will control the 100-year event for a portion of the study area. Average annual benefits are estimated at $1,859,000 all for flood control. The benefit-cost ratio is 2.5:1 based upon the latest economic analysis dated November 1995. The non-Federal sponsor, the city of Las Cruces, New Mexico, supports the recommended plan and fully intends to cost share in its implementation.

The project is not authorized for construction. In accordance with the cost sharing and financing concepts currently being proposed by the Department of the Army, and being discussed among the Administration and the Congress, local interests will be required to provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas, modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent of the costs allocated to flood control in cash during the period of construction; contribute an additional amount in cash or credits to bring the total non-federal share of costs allocated to structural flood control to 50 percent; and bear all costs of operation, repair, replacement, and maintenance of flood control facilities. Communities must agree to adopt additional flood plain management activities, beyond the current requirement to participate in the National Flood Insurance Program, in order to qualify for Federal participation in a structural flood damage reduction project under the terms as described above. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of stormwater runoff, and preservation of open space.

Funds in Fiscal Year 1997 will be used to initiate plans and specifications. Preconstruction engineering and design is scheduled for completion in May 1997.

1723

Project	Total Estimated Federal Cost $	Allocation Prior To FY 1996 $	Allocation FY 1996 $	Tentative Allocation FY 1997 $	Additional To Complete After FY 1997 $
Texas					
Brays Bayou, Houston	6,900,000	2,518,000	371,000	1,110,000	2,901,000

Brays Bayou drains about 137 square miles in the south-central portion of the Buffalo Bayou watershed. The area is subject to rainstorms throughout the year and urban flooding is a common occurrence. About 53,400 homes and businesses are currently subject to flooding by the Standard Project Flood (SPF), and about 25,000 of these properties would be subject to flooding by a 100-year frequency flood. On an average annual basis, stream flooding could cause nearly $46,000,000 in damages per year to existing properties. Brays Bayou is one feature of a comprehensive plan for the Buffalo Bayou watershed which has five other separate elements providing flood control on Greens, Halls, Hunting, Little White Oak, and Carpenters Bayous. The recommended plan of improvement for Brays Bayou includes 3 miles of channel improvements, 3 flood detention basins, and 7 miles of stream diversion. The plan would reduce the existing 100-year frequency floodplain area along Brays Bayou by about 97 percent. Average annual flood damages would be reduced by about 95 percent. Aesthetic vegetation would be included. Recreation features including hike and bike trails, picnic facilities, sports fields, comfort stations and parking areas are included. The total first cost of the recommended plan, based on October 1995 price levels (first cost), is estimated at $329,804,000 (1 October 1995 price levels) with an estimated Federal cost of $164,902,000, and an estimated non-Federal cost of $164,902,000. The average annual benefits are estimated at $84,989,500 for flood control, and $1,623,700 for recreation. The benefit-cost ratio is 2.8 to 1 based upon the latest economic analysis dated March 1993 with cost updated to October 1995. Benefits have been reviewed and deemed valid until ongoing project evaluation is complete. The Local Cost-Sharing Sponsor (LCSS) has requested that the project be divided into separable elements in accordance with their financial capability. Separable elements have been identified. Coordination with the LCSS has also led to timing of the construction start to coincide with their potential financial capability. The PED schedules have been optimized for efficiency and detail. The LCSS for the project is the Harris County Flood Control District (HCFCD), a certified agent of the Harris County Commissioners Court in Texas. They are a willing and viable local sponsor, and at present are the cost sharing partner on two major flood control projects, Clear Creek and Sims Bayou, Texas, which are under construction. Project is being developed in concert with the local sponsor and on a timetable to meet their financial requirements.

The project is authorized for construction by the Water Resources Development Act of 1990. In accordance with the cost sharing and financing concepts currently being proposed by the Department of the Army, and being discussed among the Administration and the Congress, local interests will be required to provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas, modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent of the costs allocated to flood control in cash during the period of construction; contribute an additional amount in cash or credits to bring the total non-federal share of costs allocated to structural flood control to 50 percent; and bear all costs of operation, repair,

Project	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$

Texas (Continue)

Brays Bayou, Houston (Continued)

replacement, and maintenance of flood control facilities. Communities must agree to adopt additional flood plain management activities, beyond the current requirement to participate in the National Flood Insurance Program, in order to qualify for Federal participation in a structural flood damage reduction project under the terms as described above. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of stormwater runoff, and preservation of open space.

Fiscal Year 1996 funds are being used to initiate the Project Design Memorandum (PDM) for the detention element and to continue a General Evaluation Report (GRR) to identify an alternative to the diversion element. Fiscal Year 1997 funds will be used to complete the PDM for detention, continue the GRR for the alternative to the diversion, and continue preconstruction engineering and design (PED).

The completion date for PED is currently being determined.

Project	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$
Texas (Continued)					
Cypress Creek, Houston	2,800,000	1,500,000	222,000	400,000	678,000

The project is located north of Houston in Harris County, Texas on Cypress Creek. The lower portion of the Cypress Creek watershed has experienced a dynamic growth over past decades and the 319-square-mile drainage area now contains about 172,000 people. The frequency of Cypress Creek overflows has increased concurrently with the population growth. The magnitude of the flood damage to the growing residential and commercial development has reached intolerable levels. More than 3,400 homes and businesses are currently subject to flooding by the Standard Project Flood (SPF); more than 2,400 of those properties would be damaged by a 100-year flood. A single occurrence of the 100-year flood would cause an estimated $98,000,000 in damages to flood plain properties along Cypress Creek. During a flood event in October 1984, several hundred homes were flooded, and about 500 persons were evacuated. An even larger flood occurred in May 1989, damaging 540 homes and causing property losses in excess of $10,000,000. The authorized project, estimated to cost $146,490,000 (1 October 1995 price levels) with an estimated Federal cost of $73,245,000, and an estimated non-Federal cost of $73,245,000. First costs include: (1) enlargement of the lower 29.4 miles of the Cypress Creek Channel, incorporating grassed side slopes and channel bottom and appropriate erosion control measures; (2) application of flood plain management techniques, primarily to future development, in the residual flood plain; (3) construction of project-oriented recreation features, including 11.5 miles of hike-and-bike trails and related facilities for health, safety, and public access; and (4) habitat management measures on 422 acres of Harris County Parkway Project land, creation of wooded and brush habitat along 70 acres of the project right-of-way, acquisition of 329 acres of wildlife habitat along the creek, and creation of 64 acres of ponds and marshes. The average annual benefits amount to $16,418,000 ($12,698,000 for flood control, $1,506,000 for recreation and $2,214,000 for other benefits). The benefit-to-cost ratio is 1.4 to 1 based upon the latest economic analysis dated October 1989 with cost updated to October 1995. The local sponsor, Harris County Flood Control District (HCFCD), wants to provide flood protection for Cypress Creek, but does not support the proposed channel plan. The local sponsor would like flood control methods with less physical impacts to the stream. Preliminary investigation has identified buy-out of structures, elevation of structures, and levees for protection of specific areas of the watershed as other alternatives for continued study. The HCFCD agreed to provide 50 percent of the cost for a reevaluation study, with their share currently estimated at $1,000,000. The cost-sharing agreement was executed 28 February 1994.

A draft General Reevaluation report is scheduled to be completed in August 1996 and approved by higher authority in March 1997. A benefit evaluation will be included as plans are developed.

Project	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$

Texas (Continued)

Cypress Creek, Houston (Continued)

The project is authorized for construction by the Water Resources Development Act of 1988. In accordance with the cost sharing and financing concepts currently being proposed by the Department of the Army, and being discussed among the Administration and the Congress, local interests will be required to provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas, modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent of the costs allocated to flood control in cash during the period of construction; contribute an additional amount in cash or credits to bring the total non-federal share of costs allocated to structural flood control to 50 percent; and bear all costs of operation, repair, replacement, and maintenance of flood control facilities. Communities must agree to adopt additional flood plain management activities, beyond the current requirement to participate in the National Flood Insurance Program, in order to qualify for Federal participation in a structural flood damage reduction project under the terms as described above. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of stormwater runoff, and preservation of open space.

Fiscal Year 1996 funds will be used to complete the draft General Reevaluation Report scheduled to be completed in August 1996. Fiscal Year 1997 funds will be used to prepare a Project Design Memorandum. The completion date for Preconstruction Engineering and Design is currently being determined.

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1727

Project	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$
Texas (Continued)					
Dallas Floodway Extension, Trinity River	4,330,000	1,830,000	320,000	930,000	1,250,000

The project area is located in Dallas, Texas. In 1960, the Corps of Engineers rebuilt the existing Dallas Floodway, which is located near the confluence of Elm Fork and West Fork of the Trinity River. As originally designed the Dallas Floodway Extension would extend the channel/levee system of the Dallas Floodway downstream a distance of 9 miles. Also included in the original project were 4.1 miles of channel improvements along White Rock Creek, and 5.4 miles of channel improvements to divert Five Mile Creek. Authorized by Congress in 1965 as part of the Trinity River Project, the Dallas Floodway Extension, was originally estimated to cost a total of $161,000,000; $80,500,000 in Federal cost and $80,500,000 in non-Federal cost. A total of 1,799 structures would have been protected from the Standard Project Flood, as would 6,450 acres of land. The 5,000 acres of land between the proposed levees would serve as a greenbelt and recreation area. In 1982, the Corps of Engineers placed the project in an inactive status because the city of Dallas failed to pass a bond election to support the project. In May 1989, approximately 300 homes and the city of Dallas Service Distribution Center were damaged by flooding in the Rochester Park area. This same area was flooded during April and May 1990 when the Dallas-Fort Worth Metroplex received 25 inches of rain and as much as 16 inches in one 24 hour period in some locations, resulting in an estimated $50 million in flood damages with no loss of life. The most recent flood was in December 1991-January 1992, when about 200 homes in the Rochester Park area were inundated when the Trinity River overflowed its banks, resulting in an estimated $30 million in flood damages and no loss of life. The city of Dallas, by letter dated 2 October 1989, requested a reevaluation of the Dallas Floodway Extension, which was initiated in Fiscal Year 1991. The city of Dallas, the local sponsor, is very interested in this project and understands the financial requirements of cost sharing. The city of Dallas completed the construction of a levee in November 1992, which provides a 200-year flood frequency protection to Rochester Park and construction of a levee in 1993, which provides 100-year protection to the Central Waste Water Treatment Plant.

While the reevaluation study is scheduled for completion in January 1997, it has been determined that the authorized project is no longer justified. Based on preliminary findings of the reevaluation study, the National Economic Development (NED) Plan is now a swale with an average width of 1200 feet. The first cost of this plan is approximately $54 million, based on October 1995 prices, with a benefit-cost ratio of 3.3 to 1. The locally preferred plan has yet to be identified, but Federal participation will be limited to approximately $27 million, as defined by the cost sharing provisions applicable to the NED Plan. In accordance with the cost sharing and financing concepts currently being proposed by the Department of the Army, and being discussed among the Administration and the Congress, local interests will be required to provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas, modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent

1728

Project	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$

Texas (Continued)

Dallas Floodway Extension, Trinity River (Continued)

of the costs allocated to flood control in cash during the period of construction; contribute an additional amount in cash or credits to bring the total non-federal share of costs allocated to structural flood control to 50 percent; and bear all costs of operation, repair, replacement, and maintenance of flood control facilities. Communities must agree to adopt additional flood plain management activities, beyond the current requirement to participate in the National Flood Insurance Program, in order to qualify for Federal participation in a structural flood damage reduction project under the terms as described above. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of stormwater runoff, and preservation of open space.

The project was originally authorized for construction under the Rivers and Harbors Act approved 2 March 1945 (Public Law 79-14, House Document 403/77/1); Rivers and Harbors Act approved 17 May 1950 (Public Law 81-516, House Document 242/81/1) as part of the Trinity River Project. Based on preliminary findings of the reevaluation studies, reauthorization of the project may be necessary.

Fiscal Year 1996 funds are being utilized to continue the General Reevaluation Report. Fiscal Year 1997 funds will be used to complete the General Reevaluation Report and EIS which is scheduled for completion in January 1997 and initiate the Project Design Memorandum. The schedule for completion of Preconstruction Engineering and Design is currently being determined.

Project	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$
Texas (Continued)					
Greens Bayou, Houston	5,600,000	2,788,000	222,000	860,000	1,730,000

Greens Bayou, excluding its tributary of Halls Bayou, drains about 154 square miles in the north central area of the Buffalo Bayou watershed. The area is subject to rainstorms throughout the year and urban flooding is a common occurrence. About 10,967 homes and businesses are currently subject to flooding by the Standard Project Flood (SPF), and about 7,100 of these properties would be subject to flooding by a 100-year frequency flood. On an average annual basis, stream flooding could cause about $17,800,000 in damages per year to existing properties. Greens Bayou is one feature of a comprehensive flood control plan for the Buffalo Bayou watershed which has six separate elements providing flood control on Carpenters, Greens, Halls, Hunting, Little White Oak, and Brays Bayous. Plan features for Greens Bayou include 25 miles of channel improvements, 14 miles of selective clearing, acquisition of flood-prone properties, and 4 flood detention basins. The proposed project would provide about 25-year flood protection, but would reduce average annual damages by 91.2 percent. Aesthetic vegetation would be included to improve environmental quality, and mitigation would be required to compensate for the loss of 48 acres of riparian forest fish and wildlife habitat, and for 194 acres of upland forest wildlife habitat. Recreation features incorporated into the plan include trails, picnic facilities, sports fields, canoe launching ramps, comfort stations and parking areas. The total first cost of the recommended project is estimated to cost $227,602,000 (1 October 1995 price levels) with an estimated Federal cost of $113,801,000 and an estimated non-Federal cost of $113,801,000. The average annual benefits are estimated at $61,373,300 for flood control, and $1,901,800 for recreation. The benefit-cost ratio is 2.3 to 1 based upon the latest economic analysis dated August 1993 with cost updated to October 1995. Benefits have been reviewed and deemed valid until ongoing project evaluation is complete. The Local Cost-Sharing Sponsor (LCSS) has requested that the project be divided into separable elements in accordance with their financial capability.

A draft Limited Reevaluation Report (LRR) was completed in October 1993. Based on HQUSACE review of the LRR, it has been determined that phased construction will be pursued for the authorized project. Further partnering with the sponsor has determined that reformulation and a General Reevaluation Report (GRR) are necessary. Coordination with the LCSS has also led to timing of the construction start to coincide with their potential financial capability. The Preconstruction Engineering and Design (PED) schedules will be optimized for efficiency and detail. The LCSS for the project is the Harris County Flood Control District (HCFCD), a certified agent of the Harris County Commissioners Court in Texas. They are a willing and viable local sponsor, and are the cost sharing partner on two major flood control projects, Clear Creek and Sims Bayou, Texas, which are under construction.

1730

Project	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$

Texas (Continued)

Greens Bayou, Houston (Continued)

This project is authorized for construction by the Water Resources Development Act of 1990. In accordance with the cost sharing and financing concepts currently being proposed by the Department of the Army, and being discussed among the Administration and the Congress, local interests will be required to provide lands, easements, rights-of-way and borrow and borrow and excavated or dredged material disposal areas, modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent of the costs allocated to flood control in cash during the period of construction; contribute an additional amount in cash or credits to bring the total non-federal share of costs allocated to structural flood control to 50 percent; and bear all costs of operation, repair, replacement, and maintenance of flood control facilities. Communities must agree to adopt additional flood plain management activities, beyond the current requirement to participate in the National Flood Insurance Program, in order to qualify for Federal participation in a structural flood damage reduction project under the terms as described above. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of stormwater runoff, and preservation of open space.

Fiscal Year 1996 funds are being used to develop a GRR to identify a mutually acceptably project. Fiscal Year 1997 funds will be used to continue preparation of the GRR with approval by HQUSACE anticipated in September 1998.

The completion date for PED is currently being determined.

Project	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$
Texas (Continued)					
South Main Channel	6,300,000	2,743,000	667,000	650,000	2,240,000

The South Main Channel is a major feature of the Lower Rio Grande Basin project, a comprehensive flood control-drainage project for the two-county Valley region of Texas. The South Main Channel project is located in Hidalgo and Willacy Counties, Texas. Existing drainage is extremely limited throughout the Lower Rio Grande Basin, and runoff is impeded by flat topography, roads, railroads, irrigation canals, and inadequate outlets. Flood waters damage homes, businesses, and crops; block transportation; interrupt business, tourism, school attendance, and utility services; and increase rescue and repair activities. Under existing conditions the average annual flood damages are estimated at $12,237,000 (1 October 1995 prices). The area is subject to flooding from long-term accumulations of moderate rainfall as well as from torrential rainfall associated with tropical storms. Hurricane Beulah (1967), one of the largest in the history of the area, dumped more than 30 inches of rain in the Valley and caused almost $128,168,000 (1 October 1995 price levels) in damages in Cameron, Hidalgo, and Willacy Counties. Numerous cities and communities and almost 500,000 acres of agricultural land were flooded by the storm. The comprehensive flood control and drainage project for the region was authorized by the Water Resources Development Act of 1986. The total first cost of the recommended project is estimated to cost $181,419,000 (1 October 1995 price levels) with an estimated Federal cost of $90,709,500 and an estimated non-Federal cost of $90,709,500, consists of major outlet improvements which includes enlargement of existing channels and construction of new channels totaling 113 miles. This would provide flood protection for the cities of McAllen, Edinburg, Edcouch, La Villa and Lyford, as well as the rural areas of Hidalgo and Willacy Counties north of U.S. Highway 83. The average annual benefits for this feature amount to $17,761,000, all for flood control and drainage. The benefit-to-cost ratio is 1.14 to 1 based upon the 1985 Phase I General Design Memorandum, modified by the Water Resources Development Act of 1986, with cost updated to October 1995 prices. General Reevaluation studies are being conducted to reaffirm the authorized plan under current evaluation criteria, and physical and economic conditions. The General Reevaluation report will be completed in July 1998. The local sponsors are Hidalgo County Drainage District (HCDD) No. 1 and Willacy County Drainage District No. 1. Date of assurances were initially received in November 1969 and reaffirmed in December 1980, July 1982, December 1989, and October 1993. To date the HCDD No. 1 has spent about $60 million in drainage measures and applied and received approval partial credit under Section 104 of WRDA 86. The project is authorized for construction by the Water Resources Development Act of 1986. In accordance with the cost sharing and financing concepts currently being proposed by the Department of the Army, and being discussed among the Administration and the Congress, local interests will be required to provide lands, easements, rights-of-way and borrow and borrow and excavated or dredged material disposal areas, modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent of the costs allocated to flood control in cash during the period of construction; contribute an additional amount in cash or credits to bring the total non-federal share of costs allocated to structural flood control

1732

Project	Total Estimated Federal Cost	Allocation Prior To FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional To Complete After FY 1997
	$	$	$	$	$

Texas (Continued)

South Main Channel (Continued)

to 50 percent; and bear all costs of operation, repair, replacement, and maintenance of flood control facilities. Communities must agree to adopt additional flood plain management activities, beyond the current requirement to participate in the National Flood Insurance Program, in order to qualify for Federal participation in a structural flood damage reduction project under the terms as described above. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of stormwater runoff, and preservation of open space.

Fiscal Year 1996 funds are being utilized to continue General Reevaluation studies. Fiscal year 1997 funds will be used to continue the General Reevaluation Studies. The completion date for preconstruction engineering and design effort is currently being determined.

c. Shoreline Protection: None.

d. Multiple Purpose: None.

1733

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Channel to Victoria, TX (Continuing)

LOCATION: The project is located in south central Texas within Calhoun and Victoria Counties. The channel extends approximately 35 miles from the Gulf Intracoastal Waterway in San Antonio Bay to a turning basin located approximately seven miles south of the City of Victoria.

DESCRIPTION: The existing 9-foot by 100-foot Channel to Victoria is a tributary channel to the Gulf Intracoastal Waterway (GIWW). The project, authorized by the Water Resources Development Act of 1988, consists of enlarging the 35-mile shallow-draft navigation channel to 12 feet by 125 feet from the GIWW in San Antonio Bay to a 500-foot by 800-foot turning basin near the City of Victoria. The 2.3 million cubic yards of material dredged from the 10-mile bay reach will be deposited in two upland disposal areas, one 340 acres in size and the other 265 acres; the 4.3 million cubic yards of material dredged from the landlocked reach will be placed in disposal areas adjacent to the channel. The project also includes upgrading the fender systems at the Highway 35 bridge and the Missouri Pacific Railroad bridge and construction of two weir structures in the vicinity of Green Lake. The local sponsors for the project are the Victoria County Navigation District and the West Side Calhoun County Navigation District.

AUTHORIZATION: Water Resources Development Act of 1988.

REMAINING BENEFIT-REMAINING COST RATIO: 2.0 to 1 at 8 3/4 percent.

TOTAL BENEFIT-COST RATIO: 1.6 to 1 at 8 3/4 percent.

INITIAL BENEFIT-COST RATIO: 1.6 to 1 at 8 3/4 percent (FY 1993)

BASIS OF BENEFIT-COST RATIO: Benefits are based on Reevaluation Report approved at Southwestern Division January 1990, costs are included in the Project Design Memorandum approved by Southwestern Division October 1991, as amended and updated to October 1994 price levels. Benefits were reaffirmed in a Limited Reevaluation Report approved at the ASA (CW) on 18 October 1994. Costs have been updated to 1 October 1995 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST FED. COST
Estimated Federal Cost (CoE)		$22,500,000	
Scheduled Construction			
Estimated Federal Cost (DoT)		230,000	
Scheduled Construction			
Estimated Federal Cost (USCG)		60,000	
Scheduled Construction			
Estimated Total Federal Cost		$22,790,000	
Estimated Non-Federal Cost		7,360,000	
Scheduled Construction	$7,360,000		
Cash Contribution	$2,500,000		
Other Costs	4,860,000		
Total Estimated Scheduled Construction Cost		$30,150,000	
Total Estimated Project Cost		30,150,000	
Allocations to 30 September 1995		2,786,000	
Conference Allowance for FY 1996		3,100,000	
Allocation for FY 1996		3,743,000 1/	
Allocations through FY 1996		6,529,000	29
Allocation Requested for FY 1997		9,550,000	71
Programmed Balance to Complete after FY 1997		6,421,000	
Unprogrammed Balance to Complete after FY 1997		0	

STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	12	Being Determined

PHYSICAL DATA

Channels:
Shallow Draft Channel 12' x 125' x 35 miles long
Upland Disposal Areas:
13 disposal areas with total acreage of 1,930

1/ Reflects $257,000 reduction assigned as savings and slippage and $900,000 reprogrammed to the project.

JUSTIFICATION: The existing channel is 9 feet deep by 100 feet wide. The channel primarily serves several sand and gravel shippers, and petrochemical plants along the waterway. The waterway currently carries approximately 3.4 million tons per year, and projections indicate that commerce will increase in the future. The proposed plan would create a safer channel for the increased future traffic and increase future development potential along the channel. The additional channel depth will accommodate barge traffic using the Gulf Intracoastal Waterway without light loading or trans-shipment. The average annual benefits are $4,907,500, all commercial navigation, based on October 1991 price levels.

FISCAL YEAR 1997: The requested amount of $9,550,000 will be applied as follows:

Initiate Dredging Station 1300+00 to 1841+00	$ 4,158,000
Complete Fish and Wildlife	200,000
Complete Dredging Station 0+00 to 600+00	5,345,000
Continue Dredging Station 600+00 to 1300+00	200,000
Cultural Resources	318,000
Planning, Engineering, and Design	200,000
Construction Management	688,000
Total	$ 9,550,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1988, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments during Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$4,860,000	$127,000
Pay 10 percent of the costs allocated to shallow draft navigation and mitigation during construction.	2,500,000	
Total Non-Federal Costs	$7,360,000	$127,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction. Local Method of Financing: The local sponsor's share of the cost will be financed primarily through the sale of general obligation bonds. A bond issue was passed by voters, 65 percent for and 35 percent against, on 2 October 1993 to finance Victoria County's share of construction costs. The general obligation bonds were sold on 8 March 1994.

STATUS OF LOCAL COOPERATION: In a Letter of Assurance dated 16 April 1987, the Victoria County Navigation District agreed to cost-share in the project in accordance with the Water Resources Development Act of 1988. A Project Cooperation Agreement (PCA) was executed in November 1994.

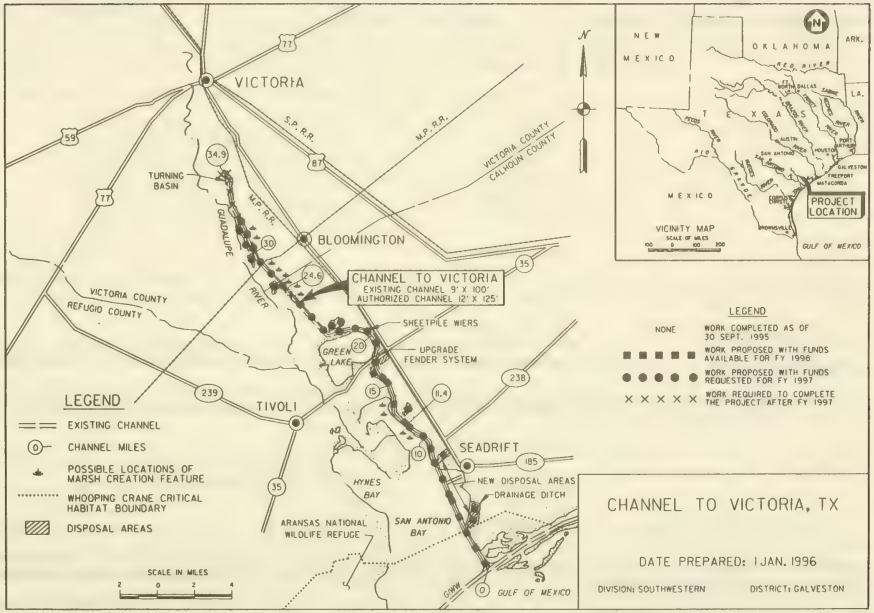
COMPARISON OF FEDERAL COST ESTIMATE: The current Federal (Corps of Engineers) cost estimate ($22,500,000) is a decrease of $2,166,000 from the latest estimate of $24,616,000 submitted to Congress (FY 1996). This change includes the following items.

Item	Amount
Reduction in Contingency	$ (-) 2,500,000
Price Escalation on Construction Features	$ 384,000
Total	$ (-) 2,116,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with Environmental Protection Agency on 15 August 1986. The Environmental Assessment was completed for the new project disposal areas, 20 September 1991.

OTHER INFORMATION: Funds were appropriated to initiate preconstruction engineering and design in Fiscal Year 1989 and funds to initiate construction were appropriated in Fiscal Year 1993.

1737


VICTORIA
S.P. R.R.
M.P. R.R.
VICTORIA COUNTY
CALHOUN COUNTY
TURNING BASIN
M.P. R.R.
GUADALUPE
RIVER
BLOOMINGTON
CHANNEL TO VICTORIA
EXISTING CHANNEL 9' X 100'
AUTHORIZED CHANNEL 12' X 125'
VICTORIA COUNTY
REFUGIO COUNTY
SHEETPILE WIERS
GREEN LAKE
UPGRADE FENDER SYSTEM
TIVOLI
SEADRIFT
NEW DISPOSAL AREAS
DRAINAGE DITCH
HYNES BAY
SAN ANTONIO BAY
ARANSAS NATIONAL WILDLIFE REFUGE
GULF OF MEXICO
LEGEND
EXISTING CHANNEL
CHANNEL MILES
POSSIBLE LOCATIONS OF MARSH CREATION FEATURE
WHOOPING CRANE CRITICAL HABITAT BOUNDARY
DISPOSAL AREAS
SCALE IN MILES
NEW MEXICO
OKLAHOMA
ARK.
LA.
TEXAS
MEXICO
PROJECT LOCATION
VICINITY MAP
SCALE OF MILES
GULF OF MEXICO
LEGEND
NONE WORK COMPLETED AS OF 30 SEPT. 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997
CHANNEL TO VICTORIA, TX
DATE PREPARED: 1 JAN. 1996
DIVISION: SOUTHWESTERN
DISTRICT: GALVESTON

18 MAR 1996

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: GIWW - Sargent Beach, TX (Continuing)

LOCATION: The project is located in south central Texas in Matagorda County between East Matagorda Bay and Cedar Lakes approximately 170 miles north of Corpus Christi and 20 miles southwest of Freeport in the vicinity of Sargent, Texas.

DESCRIPTION: The project provides for an 8-mile revetment structure consisting of armored stone, and two concrete sheetpile wall segments and mooring facilities at both ends.

AUTHORIZATION: Water Resources Development Act of 1992.

REMAINING BENEFIT-REMAINING COST RATIO: 4.5 to 1 at 8 1/2 percent.

TOTAL BENEFIT-COST RATIO: 2.5 to 1 at 8 1/2 percent.

INITIAL BENEFIT-COST RATIO: 2.5 to 1 at 8 1/2 percent (FY 1994).

BASIS OF BENEFIT-COST RATIO: Benefits and costs are based on the Feasibility Report with Engineering Appendix approved by HQUSACE in June 1992 (Chief's Report); costs are updated to October 1995 price levels.

1739

SUMMARIZED FINANCIAL DATA		STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	$ 29,300,000	Entire Project	13	Being Determined
Estimated Inland Waterways Trust Fund	29,300,000			
Total Estimated Project Cost	$ 58,600,000			

	CONSTRUCTION GENERAL APPNS.	INLAND WATERWAYS TRUST FUNDS	ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1995	6,295,000	6,295,000	
Conference Allowance for FY 1996	10,000,000	10,000,000	
Allocation for FY 1996	8,921,000 1/	8,921,000 1/	
Allocations through FY 1996	15,216,000	15,216,000	52
Allocation Requested for FY 1997	9,150,000	9,150,000	83
Programmed Balance to Complete after FY 1997	4,934,000	4,934,000	
Unprogrammed Balance to Complete after FY 1997	0	0	

1/ Reflects $1,658,000 ($829,000 Corps and $829,000 IWTF) reduction assigned as savings and slippage, and $500,000 revoked ($250,000 for the Corps and $250,000 for IWTF) for FY 96.

JUSTIFICATION: In the Sargent Beach area, there is a serious beach erosion problem which would, if not addressed, adversely affect the economically important GIWW. This portion of the GIWW parallels the Gulf of Mexico shoreline for about 10 miles and is separated from the Gulf by a land barrier varying in width from about 500 to 900 feet. Erosion along this reach of shoreline is threatening to breach and close the waterway. From 1965 to 1987, the Gulf shoreline has eroded at an average rate of 33 feet per year. Erosion of the shoreline continues and poses a high risk of creating operational inefficiencies in this portion of the waterway by the year 2003 if allowed to continue unchecked. An extended breach would essentially close the waterway to barge traffic, requiring higher cost alternatives and transportation modes to be adopted to carry existing commodities. This reach of waterway carried approximately 17 million tons of commerce in Fiscal Year 1992. The average annual benefits are $17,297,000, all commercial navigation, based on October 1991 price levels.

FISCAL YEAR 1997: The total requested amount of $18,300,000 including General Appropriation and Inland Waterways Trust Funds will be applied as follows:

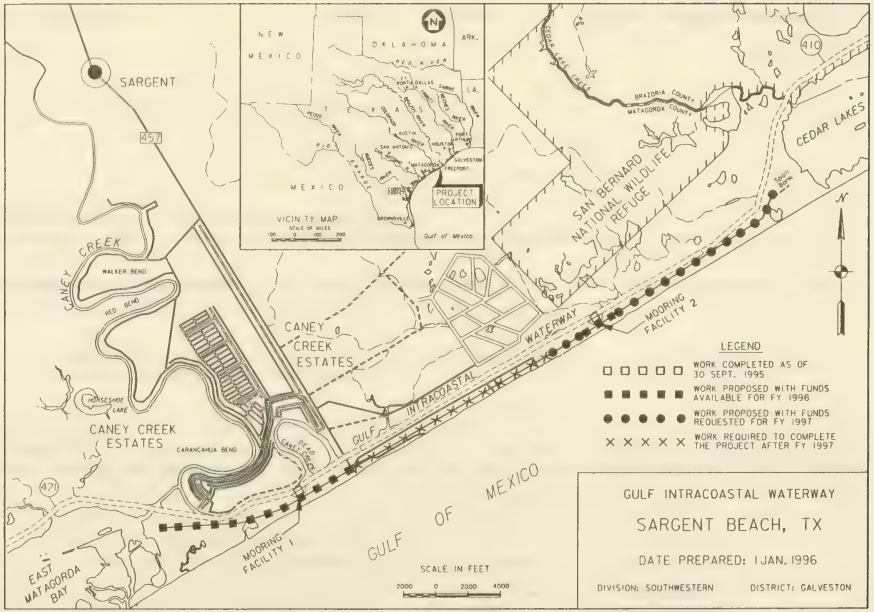
	General Appropriation	Inland Waterways Trust Fund
Continue 8-mile Revetment Construction	$ 8,760,000	$ 8,360,000
Planning, Engineering, and Design	0	400,000
Construction Management	390,000	390,000
Total	$ 9,150,000	$ 9,150,000

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $58,600,000 is a decrease of $20,200,000 from the latest estimate of $78,800,000 submitted to Congress (FY 1996). The total cost is funded 50 percent by the Inland Waterways Trust Fund.

Item	Amount
Price Escalation on Construction Features	$ (-) 1,588,000
Receipt of Contract Bids	(-)15,212,000
Contingency	(-) 3,400,000
Total	$ (-)20,600,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with Environmental Protection Agency on 20 March 1992.

OTHER INFORMATION: Funds were appropriated to initiate preconstruction engineering and design in Fiscal Year 1992 and funds to initiate construction were appropriated in Fiscal Year 1994.



1742

18 MAR 1996

APPROPRIATION TITLE: Construction, General - Locks and Dams (Navigation)

PROJECT: McClellan-Kerr Arkansas River Navigation System, Locks and Dams, AR and OK (Continuing) (Excluding Montgomery Point Lock and Dam)

LOCATION: The project is located in 15 counties in Arkansas and six counties in Oklahoma. The project begins at the confluence of the Mississippi and White Rivers and follows the White River and the Arkansas Post Canal a distance of 19 miles to the Arkansas River; thence up the Arkansas River 374 miles to the mouth of the Verdigris River; and thence up the Verdigris River to Catoosa, Oklahoma, a distance of 50 miles.

DESCRIPTION: The authorized project provides for the improvement of the Arkansas River and its tributaries by the construction of dams and channels to serve navigation, afford additional flood control, produce hydroelectric power, and provide related benefits, such as recreation and wildlife propagation. The navigation feature of the project consists of a 9-foot navigation channel from the Mississippi River to Catoosa, Oklahoma, 15 miles east of Tulsa.

AUTHORIZATION: River and Harbor Act of 1946, Water Resources Development Acts of 1974, 1986, and 1992.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio is not applicable because the project is nearing completion.

TOTAL BENEFIT-COST RATIO: See above.

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 2 ⅛ percent (FY 1963).

BASIS OF BENEFIT-COST RATIO: Benefits are from evaluation approved in July 1968 at 1968 price levels.

SUMMARIZED FINANCIAL DATA		ACCUM. PCT. OF EST. FED COST (CofE Only)	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost (CoE)	$632,500,000		Entire Project	95	Being Determined
Estimated Federal Cost (USCG)	2,268,000				
Estimated Non-Federal Cost	0				

SUMMARIZED FINANCIAL DATA (CONTINUED)

	GENERAL APPNS.	ACCUM. PCT. OF EST. FED COST
Total Estimated Project Cost	$634,768,000	
Allocations to 30 September 1995	598,365,000	
Conference Allowance for FY 1996	1,100,000	
Allocation for FY 1996	1,100,000	
Allocations through FY 1996	599,465,000	95
Allocation Requested for FY 1997	1,414,000	95
Programmed Balance to Complete after FY 1997	31,621,000	
Unprogrammed Balance to Complete after FY 1997	0	

PHYSICAL DATA

Channels: White River - 9.8 mi, 300' wide, mi 9.8 to 0.0

Verdigris River - 50.3 mi, 150' wide (1965 survey)

Arkansas Post Canal - 9.2 mi, 300' wide, mi 19.0 to 9.8

Arkansas River - 374 mi, 250' wide, mi 460.2 (1940 survey) to 41.6 (1943 survey)

All navigation channels were excavated to an initial depth of 12' or more below normal pool level.

Locks: Type - Single Chamber, single lift with miter gates
Size - 110' X 600'

Normal (maximum) Lift - Varies from 14' for Lock No. 4 to 30' for Lock No. 1.
Number of Locks and Dams - 11 on Arkansas River and canal, 2 on Verdigris River.

Dams: Movable nonnavigable type with low sills, piers, tainter gates, abutments, and overflow embankments where required.

Lands and Damages:
Acres: 127,359 Type: Predominately agricultural Improvements: Typical farm units

1744

Relocations:

Roads:	18 miles	$45,280,000	(Includes replacing 9 bridges, alter 3 bridges, and abandon 1 bridge.)
Railroads:	7 miles	$40,436,000	(Includes replacing 2 bridges, alter 6 bridges, and abandon 1 bridge.)
Cemeteries, Utilities, and Structures:		$30,016,000	Entrance Channel
(Conway Water Supply)		($21,324,000)	Levee: 3 miles $13,932,000

JUSTIFICATION: The McClellan-Kerr Arkansas River Navigation System was conceived and authorized as an overall plan made up of a group of interrelated elements consisting of lakes, multiple-purpose structures, navigation structures, and bank stabilization works, all designed on a coordinated basis to provide for development of optimum benefits. In Oklahoma, construction of Keystone and Eufaula Lakes, Robert S. Kerr Lock and Dam, Webber Falls Lock and Dam and the initial and second phase of Oologah Lake are complete, as is construction of Dardanelle Lock and Dam and the Ozark-Jeta Taylor Lock and Dam in Arkansas and construction of bank stabilization and channel rectification between the Robert S. Kerr Dam in Oklahoma and the mouth. The project opened for navigation from the Mississippi River to the Port of Tulsa at Catoosa, Oklahoma in 1970. Completion of the navigation route was a significant benefit to the economy of the surrounding area. In 1995 an estimated 11,000,000 tons of cargo were moved on the navigation system. Of this traffic, 2,800,000 tons were inbound; 4,500,000 tons were outbound, 3,200,000 tons were moved internally; and 500,000 tons were through traffic. These movements included such commodities as rock, grain, iron and steel, chemicals, chemical fertilizers, coal, petroleum products, and sand and gravel. Desha County in Arkansas qualifies as an area of "substantial and persistent" unemployment. The average annual benefits, based on July 1968 price levels, are as follows:

Annual Benefits	Amount
Navigation	$40,470,000
Power	14,838,900
Channel Stabilization	6,575,000
Flood Control	6,602,600
Water Supply	828,900
Fish and Wildlife	312,000
Recreation	2,297,000
Area Redevelopment	3,355,800
Total	$75,280,200

1745

FISCAL YEAR 1997: The requested amount will be applied as follows:

	GENERAL APPNS.
Continue Land Acquisition	$1,414,000
Total	$1,414,000

NON-FEDERAL COST: Local interests are required to provide adequate terminal and transfer facilities for navigation and bear the increased cost of maintenance and operation of all altered rail and highway routes, including bridges and appurtenances and utilities and other existing improvements, other than federally owned.

STATUS OF LOCAL COOPERATION: Prior to authorization of the project, local interests furnished written assurances that they would construct suitable public terminals. The requirements relative to increased cost of maintenance and operation of altered facilities apply to the owners of these facilities and were covered during negotiations of relocations contracts for the alteration of the various facilities.

Laws enacted in 1959 by the States of Arkansas and Oklahoma authorized the organization and operation of port authorities and permitted political subdivisions to engage in port activities. Port authorities have been organized to develop facilities in Oklahoma for the Tulsa-Rogers counties and the city of Muskogee and these ports are in operation.

In the State of Arkansas, port authorities have been organized to develop public port and harbor facilities at Fort Smith, Van Buren, Clarksville, Dardanelle-Russellville, Morrilton, Little Rock, North Little Rock, Ozark, and Pine Bluff-Jefferson County Area. The Clarksville Port Authority has acquired a 28-acre tract of land for the development of its port facility. The Fort Smith, Little Rock, and Pine Bluff-Jefferson County Ports are in operation.

In addition to the public ports discussed above, 35 companies are developing private port facilities along the navigation route in the State of Arkansas.

There are no other cost sharing or repayment requirements applicable to the project.

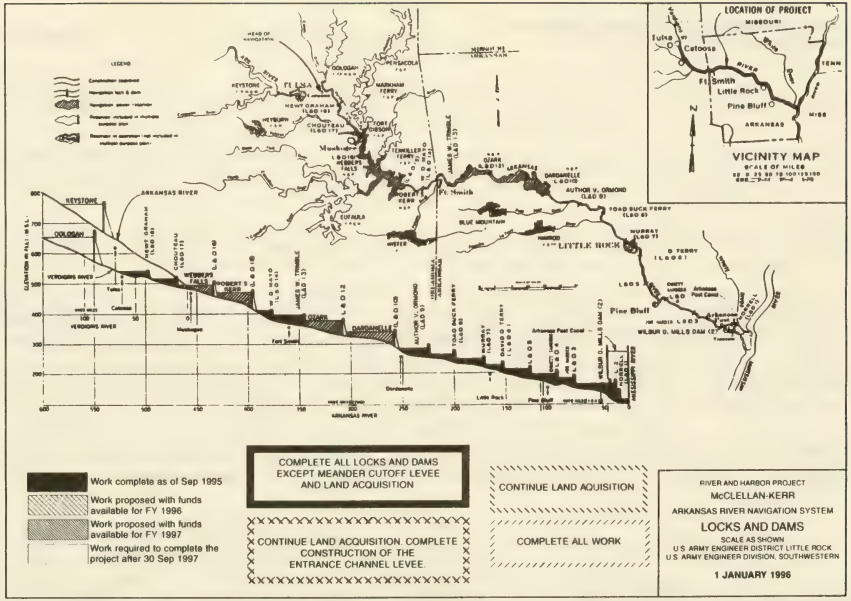
COMPARISON OF FEDERAL (CORPS OF ENGINEERS) COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $632,500,000 is a decrease of $16,500,000 from the latest estimate ($649,000,000) submitted to Congress (FY 1996). This change includes the following items:

Item	Amount
Sunk costs for Montgomery Point Lock and Dam	-$16,974,000
Price Escalation on Real Estate	474,000
Total	-$16,500,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The overall project is essentially complete and in operation. The Final Operating and Maintenance Environmental Impact Statement for the McClellan-Kerr Arkansas River Navigation System in the Little Rock District was filed with the Council on Environmental Quality on 6 March 1975. The final Environmental Impact Statement for Tulsa District was filed with the Council on Environmental Quality on 28 July 1975.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1949 and for construction in FY 1963. During the last decade, the low water level in the Mississippi River has caused delays in navigation on the White River portion of the system. The Waterways Experiment Station performed model studies to determine if any modifications can be made in the Entrance Channel to improve navigation. Studies confirmed an additional lock and dam (Montgomery Point Lock and Dam) in the Entrance Channel is the only physical solution that would improve navigation, and is economically justified. The Montgomery Point Lock and Dam is now included on a separate justification sheet.

1747



1748

18 MAR 1995

APPROPRIATION TITLE: Construction, General - Locks and Dams (Navigation)

PROJECT: Montgomery Point Lock and Dam, AR

LOCATION: This project is located in Desha County, Arkansas, on the White River approximately one half mile from the Mississippi River.

DESCRIPTION: The authorized project provides for the improvement of the Arkansas River and its tributaries by the construction of dams and channels to serve navigation, afford additional flood control, produce hydroelectric power, and provide related benefits, such as recreation and wildlife propagation. The navigation feature of the project consists of a 9-foot navigation channel from the Mississippi River to Catoosa, Oklahoma, 15 miles east of Tulsa. The Montgomery Point Lock and Dam would be the first lock and dam on the system.

AUTHORIZATION: River and Harbor Act of 1946.

REMAINING BENEFIT-REMAINING COST RATIO: 1.14 to 1 at 8 percent.

TOTAL BENEFIT-COST RATIO: 1.14 to 1 at 8 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are derived from an evaluation report approved in January 1994 at 1 October 1993 price levels.

SUMMARIZED FINANCIAL DATA	
Estimated Federal Cost (CofE)	$100,000,000
Estimated Inland Waterways Trust Funds (IWTF)	100,000,000
Estimated Non-Federal Cost	0
Total Estimated Project Cost	$200,000,000

STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Montgomery Point Lock and Dam		
Access Road	0	Being
Service Facilities	0	Determined
Lock and Dam	0	

1749

SUMMARIZED FINANCIAL DATA (CONTINUED)

	GENERAL APPNS.	INLAND WATERWAYS TRUST FUND	ACCUM. PCT. OF EST. FED COST
Allocations to 30 September 1995	$13,714,000	0	
Conference Allowance for 1996	4,900,000	0	
Allocation for 1996	4,900,000	0	
Allocations through 1996	18,614,000	0	19
Allocation Requested for 1997	4,333,500	$ 1,552,500	19
Programmed Balance to Complete after 1997	0	0	
Unprogrammed Balance to Complete after 1997	$ 77,052,500	$98,447,500	

PHYSICAL DATA

Channels: White River - 9.8 mi, 300' wide, mi 9.8 to 0.0

Locks: Type - Single Chamber, single lift with miter gates
Size - 110' X 600' Lift up to 20 feet.
Normal (maximum) Lift - Varies from 14' for Lock No. 4 to 30' for Lock No. 1.

Dams: Movable navigable type with "bottom" operated gates

Lands and Damages:
Acres: 704 Type: Timber Improvements: None

JUSTIFICATION: The McClellan-Kerr Arkansas River Navigation System was conceived and authorized as an overall plan made up of a group of interrelated elements consisting of lakes, multiple-purpose structures, navigation structures, and bank stabilization works, all designed on a coordinated basis to provide for development of optimum benefits. The project opened for navigation from the Mississippi River to the Port of Tulsa at Catoosa, Oklahoma in 1970. The White River Entrance Channel, the first 10 miles of the McClellan-Kerr Arkansas River Navigation Project is the only reach in the navigation system where the minimum stage is not controlled by a downstream dam, but by the stages of the Mississippi River. Changes on the Mississippi River have been observed for a number of years and have resulted in low water problems in the White River Entrance Channel. Construction of the Montgomery Point Lock and Dam would greatly increase the reliability of the system as requested by the users. A more reliable system should increase commerce to 35-45 million tons per year. Desha County in Arkansas qualifies as an area of "substantial and persistent" unemployment. The average annual benefits, based on October 1993 price levels, are as follows:

1750

JUSTIFICATION: (CONTINUED)

Annual Benefits	Amount
Navigation	$20,327,000
Area Redevelopment	700,000
Total	$21,027,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

	GENERAL APPNS.	INLAND WATERWAYS TRUST FUND
Complete Access Road and Service Facilities	$1,500,000	$1,500,000
Planning, Engineering and Design	2,798,500	17,500
Construction Management	35,000	35,000
Total	4,333,500	$1,552,500

NON-FEDERAL COST: None

STATUS OF LOCAL COOPERATION: Existing authorization permits the Appropriations Committee to include a provision in law that allows the Corps to withdraw funds from the Inland Waterways Trust Fund (IWTF) for Montgomery Point L&D. This is the first year to request from Congress authority to use the Inland Waterways Trust Fund.

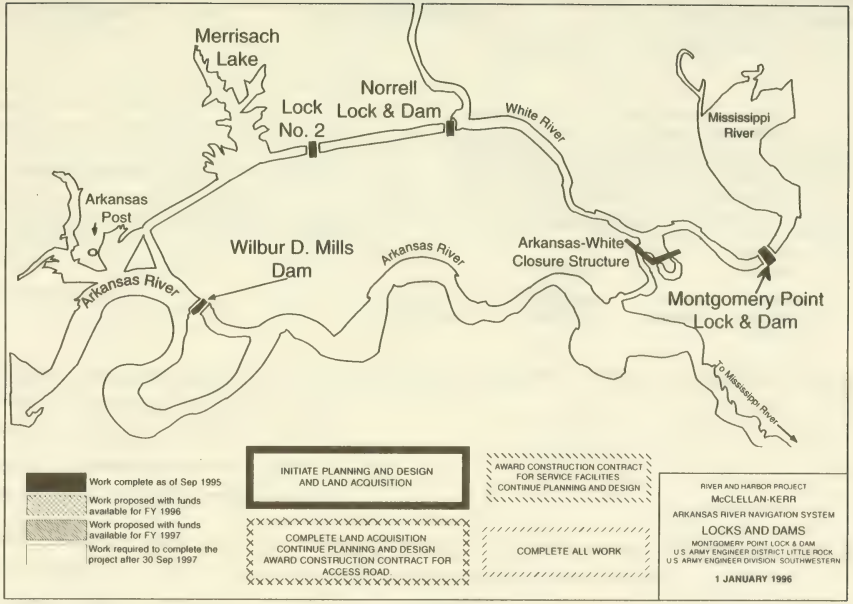
There are no other cost sharing or repayment requirements applicable to the project.

COMPARISON OF FEDERAL (CORPS OF ENGINEERS) COST ESTIMATES: The total project cost estimate of $200,000,000 has not been previously presented to Congress. One half of the cost of Montgomery Point Lock and Dam will be funded from the Inland Waterways Trust Fund.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The overall navigation system is essentially complete and in operation. The Final Operating and Maintenance Environmental Impact Statement for the McClellan-Kerr Arkansas River Navigation System in the Little Rock District was filed with the Council on Environmental Quality on 6 March 1975. The final Environmental Impact Statement for Tulsa District was filed with the Council on Environmental Quality on 28 July 1975. The final Environmental Impact Statement for the Montgomery Point Lock and Dam was filed with the Environmental Protection Agency on 28 June 1991.

OTHER INFORMATION: The McClellan-Kerr project was authorized by the River and Harbor Act of 1946 and it has been determined the Montgomery Point Lock and Dam was included in the authorization. The feasibility report was approved by the Assistant Secretary of the Army for Civil Works on 1 November 1991. However, the Assistant Secretary of the Army for Civil Works requested the Corps to prepare a Limited Reevaluation Report (LRR) to verify the economics of the project prior to construction approval. After approval of the LRR and at Congressional request, the State of Arkansas and Oklahoma Senators were notified that the project is eligible for consideration for construction funding. The Assistant Secretary of the Army for Civil Works stated that land acquisition can proceed with previously appropriated funds. Acquisition of land for the lock and dam was completed in FY 1996. As directed by Congress in the Energy and Water Development Appropriations Act of 1996, $4,900,000 is being used to award a continuing construction contract for the Access Road and accelerate planning and design on the lock and dam. Plans and specifications for the lock and dam are scheduled for completion in March 1997. The real estate estimate includes purchase of 703 acres that will be used to mitigate construction of the Montgomery Point Lock and Dam.

1752


Merrisach Lake
Lock No. 2
Norrell Lock & Dam
White River
Mississippi River
Arkansas Post
Wilbur D. Mills Dam
Arkansas River
Arkansas River
Arkansas-White Closure Structure
Montgomery Point Lock & Dam
To Mississippi River
Work complete as of Sep 1995
Work proposed with funds available for FY 1996
Work proposed with funds available for FY 1997
Work required to complete the project after 30 Sep 1997
INITIATE PLANNING AND DESIGN AND LAND ACQUISITION
COMPLETE LAND ACQUISITION
CONTINUE PLANNING AND DESIGN
AWARD CONSTRUCTION CONTRACT FOR ACCESS ROAD
AWARD CONSTRUCTION CONTRACT FOR SERVICE FACILITIES
CONTINUE PLANNING AND DESIGN
COMPLETE ALL WORK
RIVER AND HARBOR PROJECT
McCLELLAN-KERR
ARKANSAS RIVER NAVIGATION SYSTEM
LOCKS AND DAMS
MONTGOMERY POINT LOCK & DAM
U.S. ARMY ENGINEER DISTRICT, LITTLE ROCK
U.S. ARMY ENGINEER DIVISION, SOUTHWESTERN
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Alamosa, Colorado (Continuing)

LOCATION: The project is located along the Rio Grande within the community of Alamosa, Colorado.

DESCRIPTION: The project consists of a levee system which will replace and augment the existing spoil bank levees in Alamosa, Colorado.

AUTHORIZATION: Water Resources Development Act of 1992.

REMAINING BENEFIT - REMAINING COST RATIO: 1.8 to 1 at 8 ½ percent.

TOTAL BENEFIT - COST RATIO: 1.3 to 1 at 8 ½ percent.

INITIAL BENEFIT - COST RATIO: 1.3 to 1 at 8 ½ percent (FY 1994).

BASIS OF BENEFIT - COST RATIO: Benefits are from the Project Design Memorandum dated April 1993 at October 1993 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$5,950,000		Entire Project	0	Being Determined
Estimated Non-Federal Cost		$2,050,000				
Cash Contribution	$ 490,000					
Other Costs	1,560,000					
Total Estimated Project Cost		$8,000,000				
Allocations to 30 September 1995		$2,057,000				
Conference Allowance for FY 1996		600,000				

PHYSICAL DATA

Levees - 21,800 feet and 11,700 feet of earthen levee along the right and left banks respectively of the Rio Grande through Alamosa, Colorado.
Mitigation - Create 10.4 acres of wetlands.
Recreation - 15,000 feet asphalt trail, 5 rest stops.

1754

SUMMARIZED FINANCIAL DATA (continued)		ACCUM. PCT. OF EST. FED. COST
Allocation for FY 1996	550,000 1/	
Allocations through FY 1996	2,607,000	44
Allocations Requested for FY 1997	100,000	46
Programmed Balance to Complete after FY 1997	3,243,000	
Unprogrammed Balance to Complete after FY 1997	0	

1/Reflects $50,000 reduction assigned as savings and slippage.

JUSTIFICATION: The value of property within the 100-year flood plain is valued at $130,000,000. Residential property within the 100-year flood plain is worth $43,000,000. The project provides 100-year flood protection to the city of Alamosa and the unincorporated area of East Alamosa. Flood flows occurred on the Rio Grande at Alamosa in 1884 and 1921, with flows estimated at 20,000 and 18,000 cubic feet per second (cfs), respectively. The amount of damages is unknown. From 1985 to 1987, flows on the Rio Grande of up to 5,100 cfs (the 7-year event) through Alamosa would have caused significant flood damage to the City if it had not been for intensive flood fighting efforts. Mitigation measures will consist of creating a 10.4 acre wetland from the project construction borrow pit. Average annual flood inundation damages within the Alamosa area are estimated at $1,169,000 (October 1993 prices).

Annual Benefits	Amount
Flood Control	$ 856,000
Recreation	21,500
Total	$ 877,500

FISCAL YEAR 1997: The requested amount of $100,000 will be applied as follows:

Planning, Engineering and Design	100,000
Total	$ 100,000

1755

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas which may be reduced for credit allowed based on prior work (Section 104 of the Water Resources Development Act of 1986 or Section 215 of the Flood Control Act of 1968) after reductions for such credit have been made in the required cash payments.	$ 220,000	
In-Kind Credit under Section 104 of Water Resources Development Act 1986.	1,340,000	
Pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, repair, rehabilitation and replacement of recreations facilities.	100,000	$ 2,000
Pay 5 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	390,000	20,000
Total Non-Federal Costs	$ 2,050,000	$22,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

1756

STATUS OF LOCAL COOPERATION: The Project Cooperation Agreement for construction of the Alamosa, Colorado project was executed with the city of Alamosa, Colorado on 4 January 1995. The current non-Federal cost estimate of $2,050,000 which includes a cash contribution of $490,000, is the same as the non-Federal estimate noted in the Project Cooperation Agreement. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment, including annual operation and maintenance costs. The City has received $1,340,000 of in-kind credit under Section 104 of the Water Resources Development Act of 1986 for its construction of a portion of the project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $5,950,000 is the same as the latest estimate ($5,950,000) presented to Congress (FY 1996).

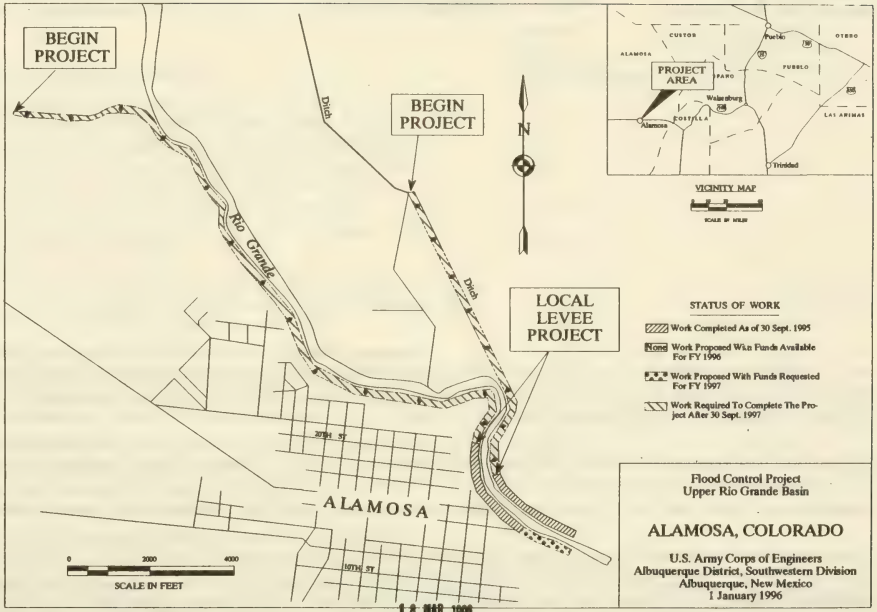
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Assessment was completed in October 1990. The Finding of No Significant Impact was signed by the District Engineer on 19 October 1990.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1990 and funds to initiate construction were appropriated in Fiscal Year 1994. The project was authorized for construction in the Water Resources Development Act of 1992 (PL 102-580). The local sponsor has received credit for the portion of the recommended project they have already constructed at a cost of $1.34 million. Fish and Wildlife cost for mitigation is $20,000. The completion date for the project is currently being determined.

1757

CORPS OF ENGINEERS

U.S. ARMY



18 MAR 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Arkansas City, Kansas (Continuing)

LOCATION: The project is located at the confluence of the Arkansas and Walnut Rivers in southern Kansas in Cowley County.

DESCRIPTION: The authorized plan, the National Economic Development Plan, consists of raising and extending the existing levee to provide standard project flood protection for the city. The lower end of the Walnut River Channel would be modified to a 350-foot bottom width with 3 to 1 side slopes for 1.9 miles and the C Street Canal would be modified to a 25 to 50-foot bottom width with 2 to 1 side slopes for 1.2 miles. The locally preferred plan (LPP) would combine most of the levee in the Walnut River floodplain with a truck by-pass highway embankment. The LPP would also extend the area of protection beyond that of the National Economic Development Plan.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 2.8 to 1 at 7¾ percent.

TOTAL BENEFIT-COST RATIO: 2.8 to 1 at 7¾ percent.

INITIAL BENEFIT-COST RATIO: 2.8 to 1 at 7¾ percent.

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest evaluation approved in June 1994, at 1994 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$ 28,100,000		Entire Project	0	Being Determined
Estimated Non-Federal Cost		10,410,000				
Cash Contribution	$1,960,000					
Other Costs	8,450,000					
Total Estimated Project Cost		$ 38,510,000				
Allocations to 30 September 1995		2,325,000				
Conference Allowance for FY 1996		700,000				
Allocation for FY 1996		700,000				

PHYSICAL DATA

Grass and Stone Lined Channels: Length - 3.1 miles
Bottom Width - 350 feet, Walnut River
- 25 to 50 feet, C Street Canal

Levees:
Length - 8.3 miles
Crest Width - 10 feet
Average Height - 21 feet

1759

SUMMARIZED FINANCIAL DATA (Continued)		ACCUM. PCT. OF EST. FED. COST
Allocations through FY 1996	3,025,000	11
Allocation Requested for FY 1997	50,000	11
Programmed Balance to Complete after FY 1997	25,025,000	
Unprogrammed Balance to Complete after FY 1997	0	

JUSTIFICATION: The project will provide protection from periodic floods which have inundated the city numerous times in past years during periods of heavy spring and summer rains and storms. The maximum flood of record, that of 1923 with a 50 year frequency, would have caused an estimated $54 million in damages at October 1995 prices and conditions of development. Over $450 million in improvements would be severely impacted by events greater that 45-year on the Arkansas River and 75-year on the Walnut River. Average annual benefits are $7,980,000, all flood damage prevention, based on January 1994 price levels.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Monitor Real Estate Acquisition	$ 10,000
Planning, Engineering & Design	40,000
Total	$ 50,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance, Repair Rehabilitation and Replacement Costs
Provide lands, easements, rights-of-way and dredged material disposal areas.	$4,185,000	
Modify or relocate utilities, roads, bridges (except railroad bridges and other facilities, where necessary in the construction of the project.	4,265,000	

NON-FEDERAL COST (Continued):

Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance, Repair Rehabilitation and Replacement Costs
Pay 5 percent of the costs allocated to flood control and bear all cost of operation, maintenance and replacement of flood control facilities.	1,960,000	$ 83,000
Total Non-Federal Costs	$10,410,000	$ 83,000

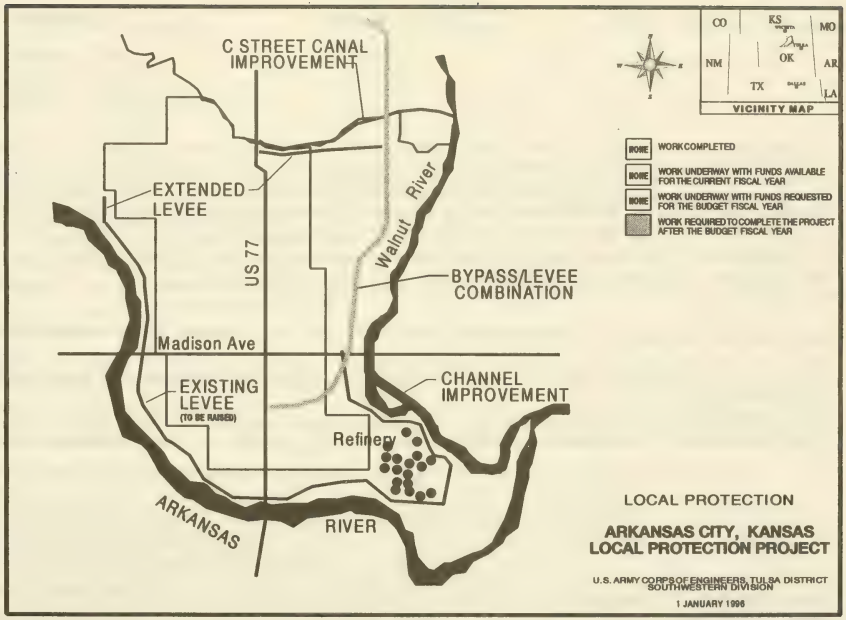
The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The city of Arkansas City indicated a willingness and capability by signing a resolution of assurance on 15 May 1994, and has since provided continued support for the project. The Project Cooperation Agreement (PCA) is scheduled to be executed in June 1996.

COMPARISON OF FEDERAL COST ESTIMATES: The Federal cost estimate of $28,100,000 has not been previously presented to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency in April 1995.

OTHER INFORMATION: Funds to initiate preconstruction, engineering and design were appropriated in Fiscal Year 1989. Funds to initiate construction were appropriated in Fiscal Year 1996. Authorization of the project, as set forth in the Water Resources Development Act of 1986, provides that the project also includes the purchase, development, and management of 35 acres of land adjacent to the Kaw Wildlife Management Area. This action would replace the 35 acres of land lost due to the Walnut River channel improvements and development of a 3.3-acre wetland, with a 1.2-acre buffer zone, in borrow area D in the northwest part of the city to mitigate the loss of 2.3 acres of wetlands. The total estimated cost for mitigation at the project is $75,000 for acquisition of 35 acres of land and $587,000 to establish a combination of high value woody vegetation and nesting cover on lands secured for mitigation.


C STREET CANAL IMPROVEMENT
EXTENDED LEVEE
US 77
Walnut River
BYPASS/LEVEE COMBINATION
Madison Ave
EXISTING LEVEE
(TO BE RAISED)
CHANNEL IMPROVEMENT
Refinery
ARKANSAS
RIVER
CO
KS
MO
NM
OK
AR
TX
LA
VICINITY MAP
WORK COMPLETED
WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR
WORK UNDERWAY WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR
LOCAL PROTECTION
ARKANSAS CITY, KANSAS
LOCAL PROTECTION PROJECT
U.S. ARMY CORPS OF ENGINEERS, TULSA DISTRICT
SOUTHWESTERN DIVISION
1 JANUARY 1996

1 8 MAR 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Winfield, Kansas (Continuing)

LOCATION: The project is located on Walnut River and Timber Creek in southeastern Kansas about 16 miles north of the Oklahoma-Kansas State line and about 35 miles southeast of Wichita, Kansas.

DESCRIPTION: An existing levee provides a 100-year level of flood protection. The proposed project would raise the existing levee to the 200-year level and would extend the levee around the southern part of the city.

AUTHORIZATION: Flood Control Act of 1965.

REMAINING BENEFIT-REMAINING COST RATIO: 1.2 to 1 at 7¾ percent.

TOTAL BENEFIT-COST RATIO: 1.2 to 1 at 7¾ percent.

INITIAL BENEFIT-COST RATIO: 1.2 to 1 at 7¾ percent.

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest evaluation approved in February 1988, at 1987 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$ 10,300,000		Entire Project	0	Being Determined
Estimated Non-Federal Cost		2,100,000				
Cash Contribution	$ 0					
Other Costs	2,100,000					
Total Estimated Project Cost		$ 12,400,000				
Allocations to 30 September 1995		1,317,000				
Conference Allowance for FY 1996		670,000				
Allocation for FY 1996		670,000				

PHYSICAL DATA

Channel Cutoff: Length - 0.3 miles
Bottom Width - 40 to 50 feet,

Levee:
Length - 4.8 miles
Top Width - 10 feet
Side Slopes - 3 horizontal to 1 vertical

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocations through FY 1996	1,987,000	19
Allocation Requested for FY 1997	50,000	20
Programmed Balance to Complete after FY 1997	8,263,000	
Unprogrammed Balance to Complete after FY 1997	0	

JUSTIFICATION: The project will provide protection from periodic floods which have inundated the city numerous times in past years during periods of heavy spring and summer rains and storms. The maximum flood of record at Winfield occurred in April 1944, and resulted in the loss of 5 lives. That flood would have caused an estimated $18.4 million in damages to the city of Winfield using October 1995 prices. The existing local levee system, improved by the city in 1986, provides 70-year flood protection. About 70 percent of the residents live in the flood plain. The project would protect nearly 3,000 structures and about 6,000 residents who live in the flood plain and 1,500 people who are employed by businesses within the flood plain. Average annual benefits are $965,000, all flood damage prevention, based on October 1987 price levels.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Monitor Real Estate Acquisition	$ 10,000
Planning, Engineering & Design	40,000
Total	$ 50,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance, Repair Rehabilitation and Replacement Costs
Provide lands, easements, rights-of-way and dredged material disposal areas.	$1,070,000	
Modify or relocate utilities, roads, bridges (except railroad bridges and other facilities, where necessary in the construction of the project.	1,030,000	

1764

NON-FEDERAL COST (Continued):

	Payments During Construction	Annual Operation, Maintenance, Repair Rehabilitation and Replacement Costs
Requirements of Local Cooperation		
Total Non-Federal Costs	$ 2,100,000	$ 72,000

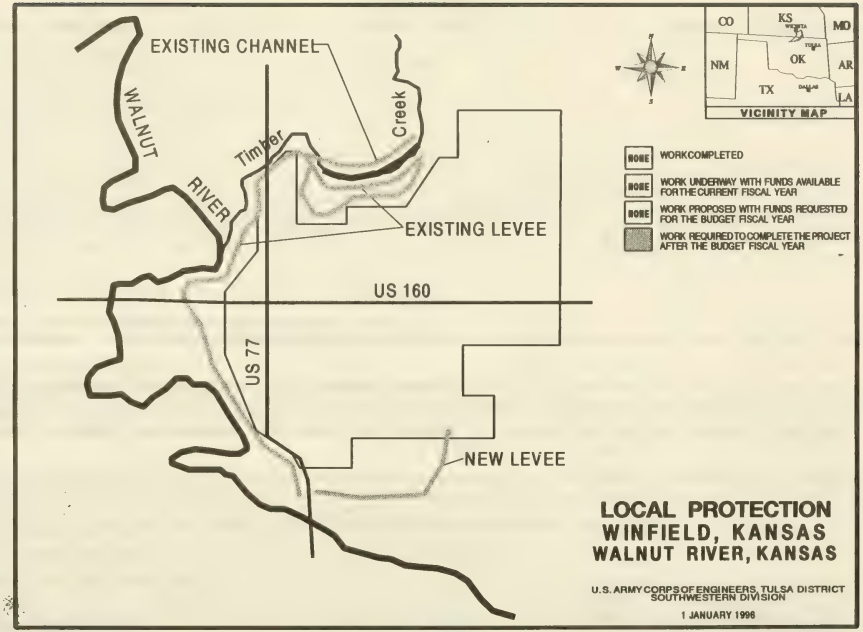
The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The city of Winfield has completed over 80 percent of the lands and damages and has completed relocations required for the project. The Project Cooperation Agreement (PCA) is scheduled to be executed in September 1996.

COMPARISON OF FEDERAL COST ESTIMATES: The Federal cost estimate of $10,300,000 has not been previously presented to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Impact Statement is not required. A Finding of No Significant Impact was completed in 1991.

OTHER INFORMATION: Funds to initiate preconstruction, engineering and design were appropriated in Fiscal Year 1990. Funds to initiate construction were appropriated in Fiscal Year 1996.


EXISTING CHANNEL
WALNUT
RIVER
Timber
Creek
EXISTING LEVEE
US 160
US 77
NEW LEVEE
CO
KS
MO
NM
OK
AR
TX
LA
VICINITY MAP
WORK COMPLETED
WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR
WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR
LOCAL PROTECTION
WINFIELD, KANSAS
WALNUT RIVER, KANSAS
U.S. ARMY CORPS OF ENGINEERS, TULSA DISTRICT
SOUTHWESTERN DIVISION
1 JANUARY 1996

18 MAR 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Alamogordo, New Mexico (Continuing)

LOCATION: The project is located in Otero County, in and near Alamogordo, New Mexico. The City of Alamogordo is situated at the foot of the Sacramento Mountains near the eastern edge of the Tularosa (Closed) Basin.

DESCRIPTION: The authorized project consists of a concrete and rip-rap lined diversion channel with Standard Project Flood flow capacity which will intercept flood flows from the Sacramento Mountains east of the City.

AUTHORIZATION: Flood Control Act of 1962.

REMAINING BENEFIT - REMAINING COST RATIO: 4.7 to 1 at 8 7/8 percent.

TOTAL BENEFIT - COST RATIO: 4.2 to 1 at 8 7/8 percent.

INITIAL BENEFIT - COST RATIO: 4.6 to 1 at 8 7/8 percent (FY 1988).

BASIS OF BENEFIT - COST RATIO: Benefits are from Supplement No. 1 to General Design Memorandum No. 1 at October 1987 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$34,800,000
Estimated Non-Federal Cost		11,600,000
Cash Contribution	$ 7,700,000	
Other Costs	3,900,000	
Total Estimated Project Cost		$46,400,000
Allocations to 30 September 1995		3,203,000
Conference Allowance for FY 1996		100,000

	ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
		Entire Project	0	Being Determined

PHYSICAL DATA

Channel:
Length - 29,500 ft.
Concrete - 8,300 ft.
Rip rap - 21,200 ft.
Eight mainline drop structures

Levees:
Length - 1,950 ft.
Crown Width - 10 -12 ft.
Height - 0-8 ft.
Freeboard - 0 ft.

1767

SUMMARIZED FINANCIAL DATA (continued)		ACCUM. PCT. OF EST. FED. COST	
Allocation for FY 1996	222,000 1/		Twenty-one side inlet structures
Allocations through FY 1996	3,425,000	10	Relocation:
			Two railroad bridges ($780,000)
Allocation Requested for FY 1997	100,000	10	1\ Reflects $8,000 reduction assigned as savings and slippage and reprogramming $130,000 into project.
Programmed Balance to Complete after FY 1997	31,275,000		
Unprogrammed Balance to Complete after FY 1997	0		

JUSTIFICATION: There are no well-defined watercourses in the Tularosa (Closed) Basin. Many canyons and arroyos which descend to the valley floor from the mountains bordering the basin carry the runoff. Several arroyos head on the west slope of the Sacramento Mountains and flow westward through the city of Alamogordo, causing extensive damage to residential and business properties, schools and churches, utilities, streets, highways, roads, and other public properties. The major problem arroyos from north to south are Dry, Beeman, Marble, and Alamo Canyons. Also, several minor unnamed arroyos in the vicinity contribute to the problem. Estimated total property valuation of the area in the standard project flood plain is $600,000,000 (1 October 1995). Estimated damages from an occurrence of the standard project flood under present conditions are $190,000,000. Records indicate that from 1935 through 1959, eleven floods exceeded the capacity of railroad drainage structures in the area, overtopping the tracks by as much as two feet. Floods on 17 and 26 August 1959 caused estimated damages of $240,000 and $57,000, respectively. These damages, based on 1 October 1995 price levels, would be $2,000,000 and $460,000, respectively. Other minor flooding, occurring as recently as 1979 and 1984, have caused City officials to be concerned about the flood threat. The average annual benefits are $12,207,500, all flood control, based on October 1987 price levels.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Planning, Engineering and Design	$100,000
Total	$100,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation and Replacement Cost
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	$ 1,310,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	2,590,000	
Pay 17 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	$ 7,700,000	$ 49,000
Total Non-Federal Cost	$11,600,000	$ 49,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: In October 1991, the City voted against proceeding with the project as designed and asked that the U.S. Army Corps of Engineers continue studying the flood problem to develop a fresh approach to a flood control solution. By letter dated 18 December 1992, the City emphasized their support and commitment to proceeding with General Reevaluation of flood control alternatives. The City reaffirmed their desire for U.S. Army Corps of Engineers assistance at the March 1994 In-Progress Review Conference. The Project Cooperation Agreement with the city of Alamogordo, New Mexico, is scheduled to be executed in September 1998.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $34,800,000 (1 October 1995) is an increase of $3,000,000 from the latest estimate ($31,800,000) presented to Congress (FY 1996). This change includes the following items.

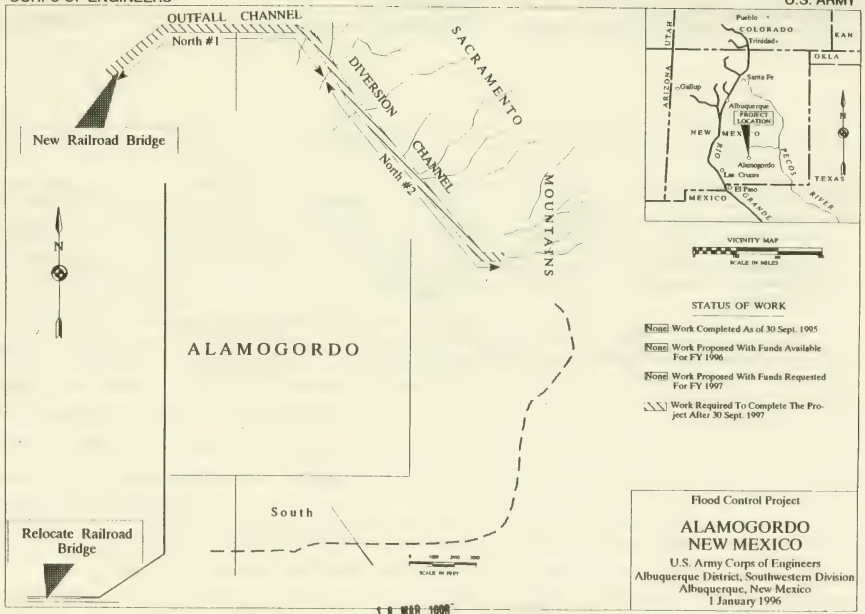
Item	Amount
Price Escalation on Construction Features	$ 3,000,000
Total	$ 3,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Assessment and Finding of No Significant Impact (FONSI) for the authorized project was signed in April 1988. The environmental report for the General Reevaluation Report is scheduled for completion in January 1998.

OTHER INFORMATION: The city of Alamogordo has been working with the U.S. Army Corps of Engineers and the New Mexico Congressional Delegation for over thirty years seeking a solution to the flood threat from the Sacramento Mountains located east of the City. Funds to initiate construction of the diversion channel were appropriated in Fiscal Year 1988. Work was discontinued in September 1988, without a contract being awarded, because the City could not give assurances of local cooperation due to the failure of a bond issue. To satisfy the concerns expressed by the City Commissioners and area residents, additional alternative solutions were investigated and are outlined in the Interim Letter Report dated August 1992. The letter report recommends reevaluation of the project through the preparation of a General Reevaluation Report. The General Reevaluation Report will address alternatives to the authorized Standard Project Flood protection plan. The new alternatives may be constructed in phases and therefore can more easily be afforded by the sponsor. To that end, the City provided a letter of intent emphasizing their commitment and support for further analysis. Preparation of the General Reevaluation Report began in July 1993 and is scheduled for completion in June 1998. The scheduled completion date for the project is currently being determined.

CORPS OF ENGINEERS

U.S. ARMY



18 MAR 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Middle Rio Grande Flood Protection, Bernalillo to Belen, New Mexico (Continuing)

LOCATION: The project is located on the Middle Rio Grande between the cities of Bernalillo and Belen, New Mexico.

DESCRIPTION: The plan of improvement consists of raising and rehabilitating 51.5 miles of levees to provide the 270-year level of protection, and the creation of 75 acres of wetlands from borrow areas within the bosque, and acquisition of 200 acres to satisfy fish and wildlife mitigation requirements.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 1.6 to 1 at 8-7/8 percent.

TOTAL BENEFIT - COST RATIO: 1.6 to 1 at 8-7/8 percent.

INITIAL BENEFIT - COST RATIO: 1.3 to 1 at 8-7/8 percent (FY 1991)

BASIS OF BENEFIT - COST RATIO: Benefits for the Belen Unit are from the General Design Memorandum approved in June 1986 at January 1986 price levels. The economic analysis and assumptions contained in the June 1986 General Design Memorandum were verified in May 1990. Benefits for the Corrales Unit are from the August 1994 Limited Reevaluation Report at 1994 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$35,700,000		Entire Project	0	Being Determined
Estimated Non-Federal Cost		29,900,000				
Cash Contribution	$24,400,000					
Other	5,500,000					
Total Estimated Project Cost		$65,600,000				

PHYSICAL DATA

Levees	- 51.5 Miles
Corrales	- 12.5 Miles
Belen	- 39.0 Miles

1772

SUMMARIZED FINANCIAL DATA (Continued)		ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1995	$ 6,874,000	19
Conference Allowance for FY 1996	0	
Allocation for FY 1996	0	
Allocations through FY 1996	6,874,000	
Allocation Requested for FY 1997	3,700,000	30
Programmed Balance to Complete after FY 1997	25,126,000	
Unprogrammed Balance to Complete after FY 1997	0	

JUSTIFICATION: The project is located along the Middle Rio Grande from the vicinity of Bernalillo to Belen, New Mexico, and contains 45 square miles of floodplain. Major developed areas which will be protected include the municipalities of Corrales, Los Lunas, Bosque Farms, and Belen. The valley has experienced growth with conversion of agricultural lands to urban and suburban land use. Approximately 30,000 residents and $940,000,000 worth of property are currently located in the 270-year floodplain. The flood threat stems from a 1,100 square mile uncontrolled drainage area upstream from the study reach which is capable of generating floodflows on the Rio Grande from summer storms which exceed the capacity of the existing spoilbank levee system. The average annual benefits are $6,338,800, based on January 1986 price levels for the Belen Unit and 1994 price levels for the Corrales Unit.

Annual Benefits	Amount
Flood Control	$6,108,600
Redevelopment	230,200
Total	$6,338,800

1773

FISCAL YEAR 1997: The total request of $3,700,000 will be applied as follows:

Initiate Corrales Fish & Wildlife Mitigation	$ 390,000
Continue Construction Corrales Levee Reach	2,570,000
Complete Corrales Cultural Resources Mitigation	80,000
Planning, Engineering and Design	540,000
Construction Management	480,000
Total	$3,700,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	**Payments During Construction and Reimbursement**	**Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs**
Corrales Reach:		
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	$ 170,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	60,000	
Pay 23.0 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	2,670,000	$ 48,000
Total non-Federal Costs - Corrales Reach	$ 2,900,000	$ 48,000

1774

Belen Reach:

Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	3,700,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	1,570,000	
Pay 5 percent of the costs allocated to flood control during the period of construction, contribute an additional 35 percent in cash to bring the total non-Federal share of flood control costs to 50 percent, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities.	21,730,000	152,000
Total Non-Federal Costs - Belen Reach	$27,000,000	$152,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction. Communities must agree to adopt additional flood plain management activities beyond the requirement to participate in the National Flood Insurance Program to qualify for Federal participation in a structural flood damage reduction project. These activities, which are being discussed between the Administration and Congress, may include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of storm water runoff, and preservation of open space.

STATUS OF LOCAL COOPERATION: By letter dated 2 June 1986, the Middle Rio Grande Conservancy District stated support for the project, and indicated a willingness to financially participate in project construction in accordance with cost sharing and financing principles contained in the Water Resources Development Act of 1986. The Corrales Unit's Project Cooperation Agreement with the Middle Rio Grande Conservancy District was executed in July 1995.

1775

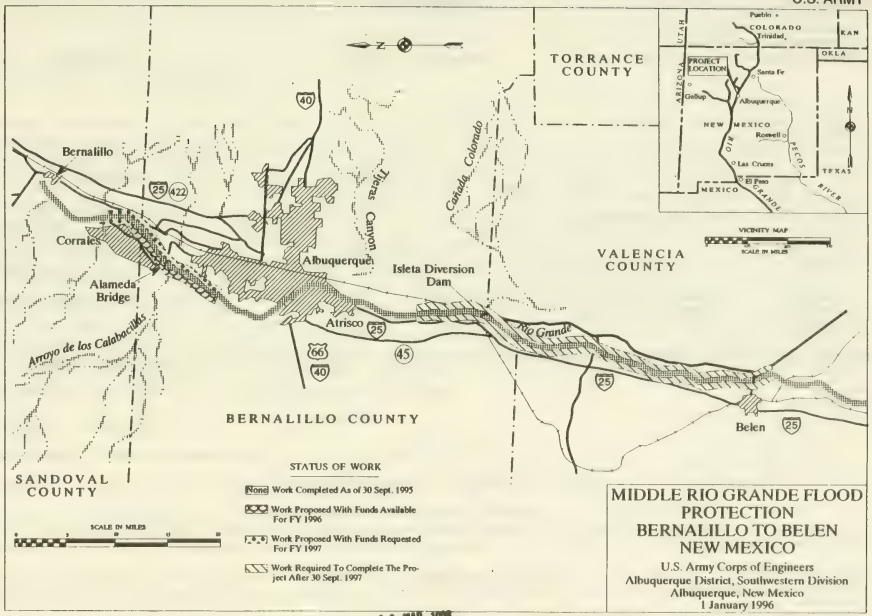
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $35,700,000 is an decrease of $9,600,000 from the latest estimate ($45,300,000) presented to Congress (Fiscal Year 1996).

Item	Amount
Price Escalation on Construction Features	$3,900,000
Revised Flood Control Cost Sharing Policy on Belen Unit	(13,500,000)
Total	($9,600,000)

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Assessment and FONSI for the Corrales Reach was signed 3 March 1995.

OTHER INFORMATION: In spite of the existing main stem projects there remains a residual flood threat which results in recurring damages currently estimated at $8,000,000 annually in the project area. Residents of low-lying areas desire relief from flooding problems. The most recent flood event occurred in 1979 and caused $1,200,000 in damages. Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1986. Funds to initiate construction were appropriated in Fiscal Year 1991. The estimated cost of Fish and Wildlife mitigation is $910,000. The completion date for the project is currently being determined.

1776



MIDDLE RIO GRANDE FLOOD PROTECTION
BERNALILLO TO BELEN
NEW MEXICO

U.S. Army Corps of Engineers
Albuquerque District, Southwestern Division
Albuquerque, New Mexico
1 January 1996

1777

18 MAR 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Rio Grande Floodway, San Acacia to Bosque del Apache Unit, New Mexico (Continuing)

LOCATION: The project is located along the Rio Grande, extending from the upper end of the Rio Grande low-flow conveyance channel at the San Acacia diversion works to the head of Elephant Butte Reservoir.

DESCRIPTION: The plan of improvement consists of the reconstruction of 55 miles of existing spoil bank levee which separates the Rio Grande low flow conveyance channel from the cleared floodway. The level of protection is a discharge of 46,000 c.f.s. at Socorro, New Mexico, corresponding to an exceedance interval of 100 years.

AUTHORIZATION: Flood Control Act of 1948 and Water Resources Development Act of 1992.

REMAINING BENEFIT - REMAINING COST RATIO: 2.3 to 1 at 8-7/8 percent.

TOTAL BENEFIT - COST RATIO: 2.2 to 1 at 8-7/8 percent.

INITIAL BENEFIT - COST RATIO: 2.2 to 1 at 8-7/8 percent (FY 1992).

BASIS OF BENEFIT - COST RATIO: Benefits are from the Appendix to the Project Decision Document dated December 1993 at October 1993 price levels.

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		$56,000,000
Estimated Non-Federal Cost		8,000,000
Cash Contribution	$5,100,000	
Other Costs	2,900,000	
Total Estimated Project Cost		$64,000,000
Allocations to 30 September 1995		3,575,000
Conference Allowance for FY 1996		0
Allocation for FY 1996		0

ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
	Entire Project	0	Being Determined

PHYSICAL DATA

Levees - 55 Miles

1778

Division: Southwestern

District: Albuquerque

Project: Rio Grande Floodway, San Acacia to Bosque del Apache, New Mexico

SUMMARIZED FINANCIAL DATA (continued)

		ACCUM. PCT. OF EST. FED. COST
Allocations through FY 1996	3,575,000	6
Allocation Requested for FY 1997	100,000	7
Programmed Balance to Complete after FY 1997	52,325,000	
Unprogrammed Balance to Complete after FY 1997	0	

JUSTIFICATION: The value of property within the 100-year flood plain is $280,000,000. Residential property within the 100-year flood plain is worth $38,000,000. The Rio Grande low-flow conveyance channel, built by the U.S. Bureau of Reclamation in 1961, is the primary damageable property in the project area. Cost to construct the channel at October 1995 price levels is $96,000,000. The U.S. Bureau of Reclamation estimates that following a flood severe enough to breach the spoil-bank levee separating the low-flow conveyance channel from the adjacent floodway, the low-flow conveyance channel would be obliterated and out of service for at least five years. As much as 455,000 acre-feet of water would be lost over such a five-year period, with an economic value of $88,000,000. Loss of the channel would also have international significance, as the 1906 Treaty with Mexico requires the delivery of 60,000 acre-feet of water annually. Single occurrence damages from the one percent chance floods are $193,000,000. Average annual damages without the project are $13,386,000 and with the project are $1,088,000. The project will provide protection from the 100-year flood. The flood of record, in September 1929, produced a peak discharge of 60,000 cubic feet per second on the Rio Grande at the San Acacia gage. Irrigation and transportation facilities were either disrupted or destroyed. Over 90 percent of the irrigated farmland in a 60 mile reach of the Rio Grande was severely damaged, and the original villages of San Acacia, San Antonio, and San Marcial were destroyed. Damages sustained at that time were $1,500,000; under current conditions and prices the damages would be $199,000,000. The last major flood event occurred in 1965 with minor flooding in 1967 and 1979. The project avoids long and short term impacts associated with the destruction or modification of wetlands; in fact, the project protects existing wetlands at Bosque del Apache National Wildlife Refuge. Average annual benefits are $12,298,000, all flood control, based on October 1993 price levels.

FISCAL YEAR 1997: The requested amount of $100,000 will be applied as follows:

Planning, Engineering and Design	$ 100,000
Total	$ 100,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, and the Water Resources Development Act of 1992, PL 102-580, Section 102(S), the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	$2,900,000	
Pay 8.0 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 12.5 percent, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	5,100,000	$170,000
Total Non-Federal Cost	$8,000,000	$170,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

1780

STATUS OF LOCAL COOPERATION: The Middle Rio Grande Conservancy District supports the authorized levee project, as currently modified, to provide needed flood protection to the Middle Rio Grande Valley below San Acacia. By letter dated 28 July 1995, the New Mexico State Engineer indicated that funding for a portion of the non-Federal share of the project may be provided by the New Mexico Interstate Stream Commission from the Improvement of the Rio Grande Income Fund. The Middle Rio Grande Conservancy District may also solicit the financial support of other project beneficiaries. The Project Cooperation Agreement is scheduled to be executed in May 1997.

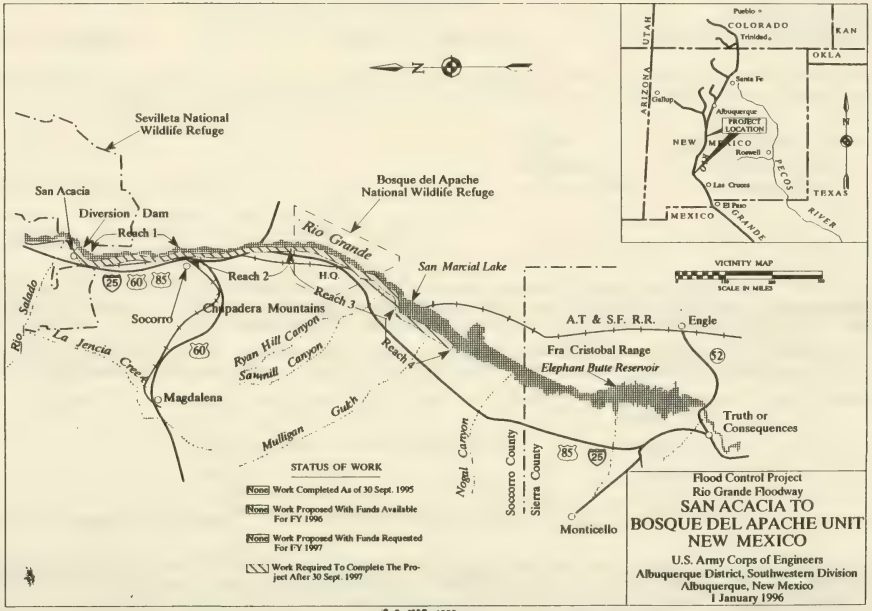
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $56,000,000 is an increase of $2,800,000 from the latest estimate ($53,200,000) presented to Congress (FY 1996). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$2,800,000
Total	$2,800,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed in September 1992. A supplemental Environmental Impact Statement will be filed with the Environmental Protection Agency in October 1996.

OTHER INFORMATION: Funds to initiate Preconstruction Engineering and Design were appropriated in Fiscal Year 1987 and funds to initiate construction were appropriated in Fiscal Year 1992. The cost of fish and wildlife mitigation is $990,000 based on 1 October 1995 price levels. The completion date for the project is currently being determined.

1781



1782

4 8 MAR 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Fry Creeks, Bixby, Oklahoma (Continuing)

LOCATION: The project is located in the northern part of the city of Bixby, Tulsa County, Oklahoma.

DESCRIPTION: The project consists of enlarging both Fry Creeks, diverting Fry Creek 1 into Fry Creek 2 and then diverting the combined creeks into the Arkansas River. The total length of the modified channels would total 4.3 miles, bottom widths of 30 to 225 feet; and depths of 6 to 12 feet. Three bridges will be constructed and 20 acres of land will be acquired for mitigation of fish and wildlife losses.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 3.2 to 1 at 8 percent.

TOTAL BENEFIT-COST RATIO: 2.0 to 1 at 8 percent.

INITIAL BENEFIT TO COST RATIO: 2.3 to 1 at 8¾ percent (FY 1993).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest evaluation submitted in May 1994, at 1993 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$ 13,650,000		Entire Project	0	Being Determined
Estimated Non-Federal Cost		4,550,000		**PHYSICAL DATA**		
Cash Contribution	$2,150,000			Grass Lined Channels: Length - 4.3 miles		
Other Costs	2,400,000			Bottom Width - 30 to 225 feet		
Total Estimated Project Cost		$ 18,200,000				
Allocations to 30 September 1995		2,942,000				
Conference Allowance for FY 1996		1,700,000				
Allocation for FY 1996		1,559,000 1/				

1/ Reflects $141,000 reduction assigned as savings and slippage.

1783

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocations through FY 1996	4,501,000	33
Allocation Requested for FY 1997	5,000,000	70
Programmed Balance to Complete after FY 1997	4,149,000	
Unprogrammed Balance to Complete after FY 1997	0	

JUSTIFICATION: The project will provide protection from periodic floods which have inundated the city numerous times in past years during periods of heavy spring and summer rains and storms. The flood of record occurred in June 1974 and caused damages estimated at $2,590,000 using 1 October 1995 price levels. The Arkansas River flooded in October 1986 so close to Fry Creek, damage could not be separated. The project would provide protection from the 100-year flood for about 1,100 acres of land, 400 residences, 22 businesses, 3 churches and a fire station, as well as streets, utilities, farm equipment and crops. Average annual benefits are $3,567,000, all flood damage prevention, based on October 1993 price levels.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue Construction	$4,720,000
Planning Engineering & Design	16,000
Construction Management	264,000
Total	$5,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance, Repair Rehabilitation and Replacement Costs
Provide lands, easements, rights-of-way and dredged material disposal areas.	$1,264,000	
Modify or relocate utilities, roads, bridges (except railroad bridges and other facilities, where necessary in the construction of the project.	$1,136,000	

NON-FEDERAL COST (Continued):

	Payments	Annual Operation, Maintenance, Repair

Requirements of Local Cooperation	During Construction	Rehabilitation and Replacement Costs
Pay 11.81 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all cost of operation, maintenance and replacement of flood control facilities.	$2,150,000	$193,100
Total Non-Federal Costs	$4,550,000	$193,100

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

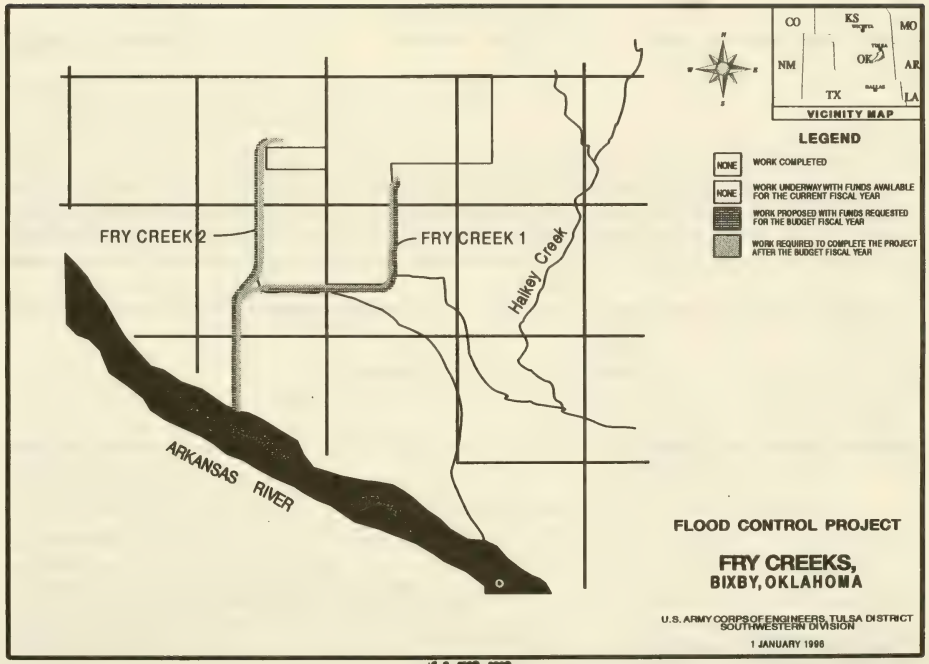
STATUS OF LOCAL COOPERATION: The Project Cooperation Agreement (PCA) was executed 24 January 1995.

COMPARISON OF FEDERAL COST ESTIMATES: The Federal cost estimate of $13,640,000 is an increase of $225,000 from the estimate ($13,425,000) as last presented to Congress (FY 1996). This change includes the following item:

ITEM	AMOUNT
Price Escalation on Construction Features	$ 225,000
Total	$ 225,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency on 18 March 1983.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1988 and funds to initiate construction were appropriated in Fiscal Year 1993. Authorization of the project, as set forth in the Water Resources Development Act of 1986, provides that the project also include acquisition of 20 acres of land for mitigation of fish and wildlife losses and that the lands, to the extent feasible, be contiguous to the project, and be in a corridor not less than 50 feet wide. The project requires a 20-acre tract be acquired. The total estimated cost for mitigation at the project is $84,000 for acquisition of 20 acres of land and $18,000 for fencing and planting of shrubs.


FRY CREEK 2
FRY CREEK 1
Halkey Creek
ARKANSAS RIVER
CO
KS
MO
NM
OK
AR
TX
LA
VICINITY MAP
LEGEND
NONE
WORK COMPLETED
NONE
WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR
WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR
FLOOD CONTROL PROJECT
FRY CREEKS,
BIXBY, OKLAHOMA
U.S. ARMY CORPS OF ENGINEERS, TULSA DISTRICT
SOUTHWESTERN DIVISION
1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Mingo Creek Tulsa, Oklahoma (Continuing)

LOCATION: The project is located in Tulsa County, Oklahoma. Approximately 90 percent of Mingo's 61 square-mile drainage area lies within the City of Tulsa.

DESCRIPTION: The project consists of 23 detention sites, 4.6 miles of rock, grass and concrete-lined channels on Mingo Creek, and 5.4 miles of concrete- and grass-lined channels on several tributaries. The city of Tulsa has completed approximately 4.75 miles of the channelization on Mingo Creek.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 15.9 to 1.0 at 8⅞ percent.

TOTAL BENEFIT-COST RATIO: 2.6 to 1.0 at 8⅞ percent.

INITIAL BENEFIT-COST RATIO: 2.0 to 1.0 at 8⅞ percent (FY 1988).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest evaluation approved in December 1987, at 1987 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$ 72,000,000		Entire Project	65	Being Determined
Estimated Non-Federal Cost		63,800,000				
Cash Contribution	$ 6,800,000					
Other Cost	57,000,000					
Total Estimated Project Cost		$135,800,000				
Allocations to 30 September 1995		56,433,000				
Conference Allowance For FY 1996		4,400,000				
Allocation for FY 1996		1,135,000 1/				

1/ Reflects $365,000 reduction assigned as savings and slippage and $2,900,000 reprogrammed from the project.

1787

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocations through FY 1996	$ 57,568,000	80
Allocation Requested for FY 1997	5,100,000	87
Programmed Balance to Complete after FY 1997	9,332,000	
Unprogrammed Balance to Complete after FY 1997	0	

PHYSICAL DATA

Concrete Lined Channel:
Length - 16,561 feet
Bottom Width - 20-120 feet

Rock Lined Channel:
Length - 2,800 Feet
Bottom Width - 200 feet

Grass Lined Channel:
Length - 29,838 feet

Dams: Detention Sites - 23

JUSTIFICATION: On the average, Mingo Creek floods about once every 2-3 years. Since 1959, ten major floods have been recorded. Mingo Creek peaks quickly with little warning time to residents of approximately 3,100 homes in the flood plain. These floods rise rapidly within 30 minutes of a heavy rain, and recede quickly, after only one to six hours. A 100-year flood (full watershed urbanization) could rise four to eight feet in depth over the streambanks with a velocity of more than five feet per second. Such floods present great hazards to life and property. The flood of record occurred 26-27 May 1984, which caused an estimated $124,000,000 ($168,500,000 at October 1995 prices) damages in the Mingo Creek flood plain and resulted in 14 fatalities in the Tulsa area with five attributable to flooding from Mingo Creek. The average annual benefits are $32,237,000, all flood damage prevention, based on October 1987 price levels.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue Cooley Detention Dams and Channels	$1,240,000
Continue Brookhollow Detention Dams	1,160,000
Continue Mainstem Phase III Detention Dams and Channels	870,000
Continue Tupelo Detention Dams	40,000
Continue Southern Tribs Detention Dams and Channels	1,500,000
Planning, Engineering and Design	110,000
Construction Management	180,000
Total	$5,100,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction	Annual Operation Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights-of-way and dredged material disposal areas.	$40,236,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	16,764,000	
Pay five percent of the costs allocated to flood control and bear all cost of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	6,800,000	$ 452,000
Total Non-Federal Costs	$63,800,000	$ 452,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The local sponsor is the city of Tulsa, Oklahoma. On 26 August 1983, the City adopted a Resolution of Assurance to provide a minimum share equal to 35 percent or the traditional lands, easements, and rights-of-way, whichever is greater, and will be required to assist in the actual financing of construction. The City has constructed 4.75 miles of channel and placed in flood control operation four excavated detention facilities. The Local Cooperation Agreement with the city of Tulsa, Oklahoma was executed on 22 January 1988. The current non-Federal cost estimate of $63,800,000 which includes a cash contribution of $6,800,000, is an increase of $5,974,000 from the non-Federal cost estimate of $57,826,000 noted in the Local Cooperation Agreement, which included a cash contribution of $7,756,000. The non-Federal sponsor is financially capable and willing to contribute the increased non-Federal share. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

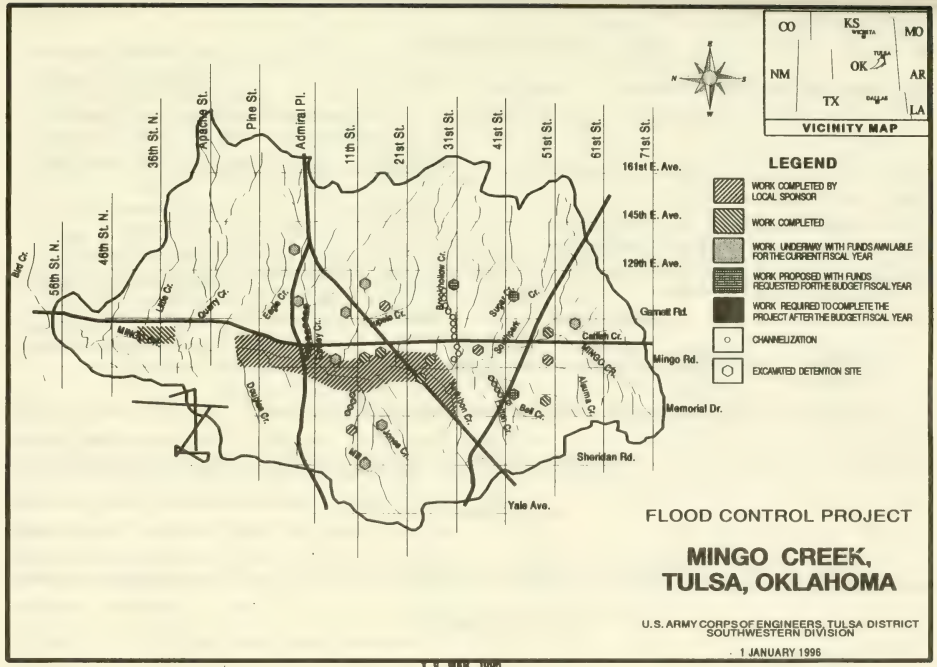
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $72,000,000 is a decrease of $4,500,000 from the latest estimate ($76,500,000) presented to Congress (FY 1996). The change includes the following items:

ITEM	AMOUNT
Price Escalation on Construction Features	(+) $ 45,000
Design Changes	(-) 2,494,000
Post Contract Award and Other Estimating Adjustments	(-) 2,051,000
Total	(-) $ 4,500,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS was filed with the Environmental Protection Agency on 3 June 1981. A supplemental report is included in the General Design Memorandum. An Environmental Assessment is being prepared to address design changes, endangered threatened species, cultural resources and mitigation requirements.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1985. Funds to initiate construction were appropriated in Fiscal Year 1988. Due to the loss of bottom land hardwoods, it was necessary to mitigate a fish and wildlife plan which includes acquisition of hardwoods for preservation. The current cost estimate includes $573,000 for acquisition of 125 acres of land.

1790



FLOOD CONTROL PROJECT

MINGO CREEK, TULSA, OKLAHOMA

U.S. ARMY CORPS OF ENGINEERS, TULSA DISTRICT
SOUTHWESTERN DIVISION

1 JANUARY 1996

18 MAR 1996

1791

23-577 96-57

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Beals Creek, Big Spring, Texas (Continuing)

LOCATION: The project is located in the city of Big Spring, Howard County, Texas.

DESCRIPTION: The project includes local protection features including channel improvement and relocations. The channel will be a trapezoidal grass-lined channel with an average depth of about 11 feet and a bottom width of 20 feet.

AUTHORIZATION: Section 201 of the 1965 Flood Control Act.

REMAINING BENEFIT-REMAINING COST RATIO: 2.6 to 1 at 8-3/4 percent.

TOTAL BENEFIT-COST RATIO: 1.2 to 1 at 8-3/4 percent.

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 8-3/4 percent (FY 1993).

BASIS OF BENEFIT-COST RATIO: Benefits are from the Design Memorandum dated June 1991 at March 1991 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		$4,436,000		Entire Project	8	Jul 1997
Estimated Non-Federal Cost		1,550,000				
Cash Contributions	$ 270,000					
Other Costs	1,280,000					
Total Estimated Project Cost		$ 5,986,000				
Allocations to 30 September 1995		1,783,000				
Conference Allowance for FY 1996		1,916,000				
Allocation for FY 1996		1,257,000 1/				

PHYSICAL DATA

Channels: 7280 feet - grass-lined
Concrete drop structure: One
Relocations: One - Railroad spur bridge

1/ Reflects $159,000 reduction assigned as savings and slippage and $500,000 reprogrammed out of project.

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocations through FY 1996	3,040,000	68
Allocation Requested for FY 1997	1,396,000	100
Programmed Balance to Complete after FY 1997	0	
Unprogrammed Balance to Complete after FY 1997	0	

JUSTIFICATION: The improvements will provide a high degree of protection, which is economically feasible at this time, to the city of Big Spring, Texas, along Beals Creek. This project will protect a highly commercialized area of the city from the flooding which has been common since the founding of the city in 1882. The current population of Big Spring, according to the 1990 census, is 23,093 people. The most recent major flooding in the city were in September 1986 and May 1987 which caused an estimated $2,780,000 and $1,370,000 in damages, respectively. The loss was to commercial, transportation, and residential property within the city. A recurrence of these floods under current conditions and October 1994 price levels would result in damages estimated at $3,580,000 and $1,740,000, respectively. This project would prevent all of the September 1986 flood damages within the city. The city was flooded three times in 1992 by 2-5 year flood events, causing about $10,000 in damages each, primarily in the commercial area of the city. The estimated average annual benefits are $605,000, all flood control, based on March 1991 price levels.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Complete Channel Improvement	$1,222,000
Planning, Engineering and Design	18,000
Construction Management	156,000
Total	1,396,000

ON-FEDERAL COST: In accordance with the cost sharing and financial concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Provide lands, relocation payments, and assistance to displaced persons.	$ 94,000	
Modify and relocate/reconstruct channel dams, bridges and utilities.	1,186,000	
Pay five percent of the costs allocated to flood control and bear all costs of operations, maintenance and replacement of flood control facilities.	270,000	$ 22,000
Total Non-Federal Costs	$ 1,550,000	$ 22,000

The non-Federal sponsor has agreed to make all required payments concurrently with project construction.

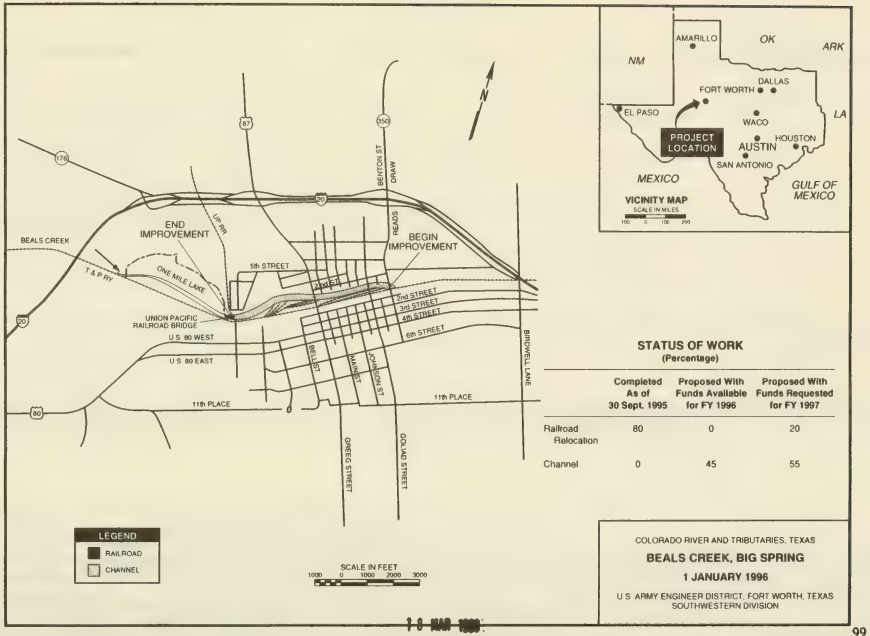
STATUS OF LOCAL COOPERATION: The city of Big Spring by letter, dated May 5, 1993, expressed their continued support for the project. The city passed a bond referendum on October 10, 1992 to fund their share of the project. In addition, the city has continued to work with the Corps in order to complete this project in a timely manner. The Project Cooperation Agreement was signed on 10 March 1994 by the Assistant Secretary of the Army (CW).

COMPARISON OF FEDERAL COST ESTIMATES: The Federal cost estimate of $4,436,000 is an increase of $486,000 over the latest estimate ($3,950,000) submitted to Congress (FY 1995). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 307,000
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	179,000
Total	$ 486,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Assessment and Finding of No Significant Impact for the proposed project were completed in January 1990. The Record of Environmental Consideration was signed on 28 June 1991. On 26 January 1994 a determination was made that the findings of the Record of Decision still apply.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1987 and funds to initiate construction were appropriated in FY 1993. The scheduled completion date of July 1997 for programmed work is a slippage from the latest completion date of September 1996 presented to Congress. This change is due to delay in acquisition of United Pacific Railroad lands for project.



STATUS OF WORK
(Percentage)

	Completed As of 30 Sept. 1995	Proposed With Funds Available for FY 1996	Proposed With Funds Requested for FY 1997
Railroad Relocation	80	0	20
Channel	0	45	55

COLORADO RIVER AND TRIBUTARIES, TEXAS

BEALS CREEK, BIG SPRING

1 JANUARY 1996

U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS
SOUTHWESTERN DIVISION

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Clear Creek, TX (Continuing)

LOCATION: The project is located about midway between the two metropolitan centers of Houston, Texas, on the north and Galveston-Texas City on the south in Harris and Galveston Counties above and below existing Clear Lake.

DESCRIPTION: The project provides for channel enlargement and easing of bends within the existing stream from Mile 3.8 to Mile 19.1, a second outlet with gated structure from Clear Lake to Galveston Bay, and replacements of riparian woodlands, brush, and wetlands to mitigate environmental effects.

AUTHORIZATION: Flood Control Act of 1968.

REMAINING BENEFIT-REMAINING COST RATIO: 2.9 to 1 at 3 1/4 percent.

TOTAL BENEFIT-COST RATIO: 2.1 to 1 at 3 1/4 percent

INITIAL BENEFIT-COST RATIO: 3.1 to 1 at 3 1/4 percent (FY 1985).

BASIS OF BENEFIT-COST RATIO: Benefits are based on evaluation made in General Design Memorandum, approved October 1982, and updated by Design Memorandum 2 approved 3 September 1986, with October 1986 price levels. Costs have been updated to 1 October 1995 price levels.

1797

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS: (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost (CofE)		$ 68,800,000		Entire Project	48	Being Determined
Estimated Non-Federal Cost		53,400,000				
Cash Contributions	$ 6,100,000					
Other Costs	47,300,000					
Total Estimated Project Cost		$122,200,000				

			PHYSICAL DATA
Allocations to 30 September 1995	$15,198,000		Channels: 15.3 miles above Clear Lake
Conference Allowance for FY 1996	0		Second Outlet: Gated outlet structure and channel from Clear Lake to Galveston Bay
Allocation for FY 1996	900,000		
Allocations through FY 1996	16,098,000	23	Relocations:
Allocations Requested for FY 1997	1,700,000	26	Railroads: Alterations to three bridges ($3,124,000)
Programmed Balance to Complete after FY 1997	51,002,000		
Unprogrammed Balance to Complete after FY 1997	0		

JUSTIFICATION: The project will provide flood protection for a rapidly developing residential and commercial area, a suburb of Houston. Value of land and improvements that will be protected from the design flood is estimated at $530,000,000 based on 1990 price levels. Flooding in June 1976 caused minor damages; however, development in the area has continued and more runoff and damages would occur under current conditions. In July 1979, major flooding occurred and approximately $50,900,000 in damages were experienced based on October 1995 price levels. The average annual benefits are $8,128,600, all flood control included in Design Memorandum 2, approved 3 September 1986, based on 1 October 1986 price levels.

FISCAL YEAR 1997: The requested amount of $1,700,000 will be applied as follows:

Continue Construction of Second Outlet Channel	$1,400,000
Federal Review (Real Estate)	75,000
Planning, Engineering, and Design	225,000
Total	$1,700,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsors must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Cost
Provide lands, easements, rights-of-way and dredged or excavated material placement areas.	$23,100,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	24,200,000	
Pay 5 percent of the separable costs allocated for mitigation measures.	250,000	
Pay 5 percent of the costs allocated to flood control, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	5,850,000	$430,000
Total Non-Federal Costs	$53,400,000	$430,000

The non-Federal sponsors have also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The sponsors are Galveston and Harris Counties. On 30 June 1986, the sponsors entered into a Local Cooperation Agreement to provide the necessary local cooperation.

The current non-Federal cost estimate of $53,400,000, which includes a cash contribution of $6,100,000, is an increase of $19,611,000 over the non-Federal cost estimate of $33,789,000 in the Local Cooperation Agreement, which included a cash contribution of $4,789,000. Analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsors have a reasonable and implementable plan for meeting their financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $68,800,000 is an increase of $250,000 from the latest estimate ($68,550,000) submitted to Congress (FY 1996). This change includes the following items.

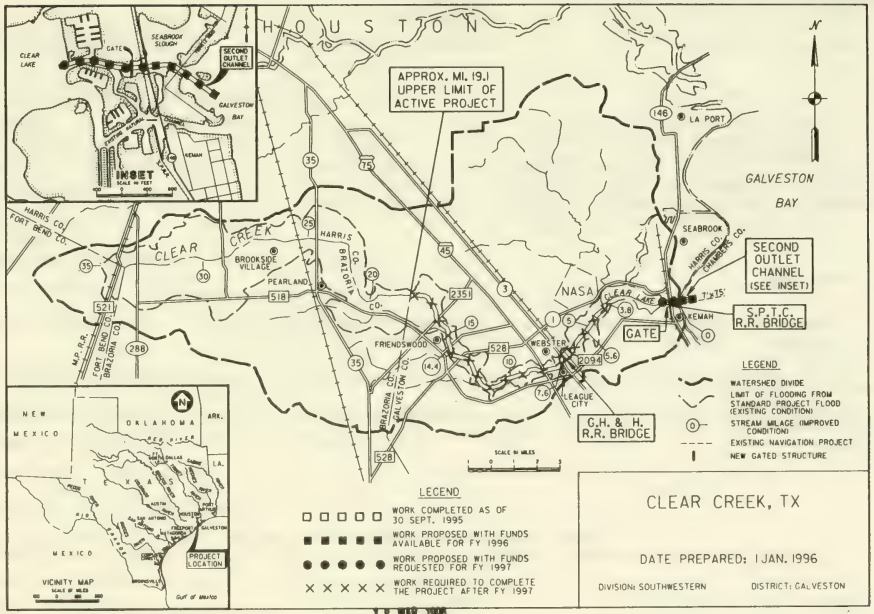
Item	Amount
Price Escalation on Construction Features	$ 250,000
Total	$ 250,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency August 1982.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1972. Funds to initiate construction were appropriated by the Fiscal Year 1985 Supplemental Appropriations Act.

By letter 20 February 1986, Brazoria County Drainage District No. 4 requested that the portion of the project lying upstream of the Brazoria-Galveston County line, river mile 19.1, be placed in the "inactive" category. Reclassification was approved 27 May 1986.

The total cost of fish and wildlife mitigation is estimated to be $5,040,000 (Federal $4,790,000 and non-Federal $250,000).


HOUSTON
N
APPROX. MI. 19.1
UPPER LIMIT OF
ACTIVE PROJECT
CLEAR LAKE
GATE
SEABROOK SLOUGH
SECOND OUTLET CHANNEL
GALVESTON BAY
KEMAH
INSET
SCALE IN FEET
HARRIS CO.
FORT BEND CO.
CLEAR CREEK
BROOKSIDE VILLAGE
PEARLAND
HARRIS CO.
BRAZORIA CO.
FRIENDSWOOD
WEBSTER
NASA
CLEAR LAKE
GATE
KEMAH
SEABROOK
HARRIS CO.
CHAMBERS CO.
SECOND OUTLET CHANNEL (SEE INSET)
S.P.T.C. R.R. BRIDGE
LEAGUE CITY
C.H. & H. R.R. BRIDGE
LA PORT
GALVESTON BAY
M.P. R.R.
FORT BEND CO.
BRAZORIA CO.
BRAZORIA CO.
GALVESTON CO.
SCALE IN MILES
LEGEND
WATERSHED DIVIDE
LIMIT OF FLOODING FROM STANDARD PROJECT FLOOD (EXISTING CONDITION)
STREAM MILAGE (IMPROVED CONDITION)
EXISTING NAVIGATION PROJECT
NEW GATED STRUCTURE
NEW MEXICO
OKLAHOMA
ARK.
LA.
TEXAS
MEXICO
PROJECT LOCATION
VICINITY MAP
SCALE OF MILES
Gulf of Mexico
LEGEND
WORK COMPLETED AS OF 30 SEPT. 1995
WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1996
WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1997
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1997
CLEAR CREEK, TX
DATE PREPARED: 1 JAN. 1996
DIVISION: SOUTHWESTERN
DISTRICT: GALVESTON

18 MAR 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: El Paso, Texas (Continuing)

LOCATION: The project is located in El Paso, El Paso County, Texas

DESCRIPTION: The project consists of a single-purpose flood control system of detention dams, diversion dikes, conduits, and channels to collect, regulate and discharge runoff into the Rio Grande.

AUTHORIZATION: Flood Control Act of 1965.

REMAINING BENEFIT - REMAINING COST RATIO: 5.2 to 1 at 3 1/4 percent.

TOTAL BENEFIT - COST RATIO: 2.0 to 1 at 3 1/4 percent.

INITIAL BENEFIT - COST RATIO: 1.5 to 1 at 3 1/4 percent (FY 1970).

BASIS OF BENEFIT - COST RATIO: Benefits are from the General Design Memorandum approved in September 1987 at October 1987 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST
Estimated Federal Cost		$113,400,000	
Estimated Non-Federal Cost		37,600,000	
Cash Contribution	$ 3,900,000		
Other Costs	33,700,000		
Total Estimated Project Cost		$151,000,000	
Allocations to 30 September 1995		$ 89,474,000	
Conference Allowance for FY 1996		400,000	
Allocation for FY 1996		- 248,000 1/	

1/ Reflects $33,000 reduction assigned as savings and slippage, and $227,000 reprogrammed from the project.

STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	79	Being Determined

PHYSICAL DATA

Central Area:
Dams - 6
Channels - 34,900 ft.
Conduits - 25,900 ft.
Southeast Area:
Dams - 4
Channels - 26,000 ft.

Northwest Area:
Dams - 5
Channels - 21,000 ft.
Conduits - 13,700 ft.

Detention Basins:
Chevron
Phelps Dodge
Lomaland
Americas

1802

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocations through FY 1996	89,226,000	79
Allocation Requested for FY 1997	$ 8,200,000	86
Programmed Balance to Complete after FY 1997	15,974,000	
Unprogrammed Balance to Complete after FY 1997	0	

JUSTIFICATION: Project provides flood protection for urban areas subject to damaging floods from arroyos on the slopes of the adjacent mountains. Major damaging floods occurred in 1950, 1955, 1958, 1962, 1963, 1966, 1967, 1968, and 1974. The flood of record occurred in 1958 and caused estimated damages of $984,000. Recurrence of this flood based on October 1995 prices would cause damages estimated at $7,060,000. Standard Project Flood is the design flood for the Central and Northwest Areas. The National Economic Development Plan has been selected for the Southeast Area. Estimated urban acres protected by the authorized project are 8,830. Value of land and improvements in the Standard Project Flood Plain is about $2.6 billion (October 1995 prices). Average annual benefits are $10,873,000, all flood control, based on October 1987 price levels.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate Lomaland System	$ 700,000
Initiate Bluff Channel Phase IV	6,388,000
Complete Bluff Channel Phase III	600,000
Planning, Engineering and Design	200,000
Construction Management	312,000
Total	$ 8,200,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursement	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Central and Northwest Areas:		
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	$10,740,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	2,560,000	
Bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities.	0	$500,000
Total Non-Federal Costs (Central and Northwest Areas)	$13,300,000	$500,000
Southeast Area:		
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	$19,960,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	440,000	
Pay 5 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	3,900,000	$ 80,000
Total Non-Federal Costs (Southeast Area)	$24,300,000	$ 80,000
Total Non-Federal Costs (Southeast, Central and Northwest Areas)	$37,600,000	$580,000

1804

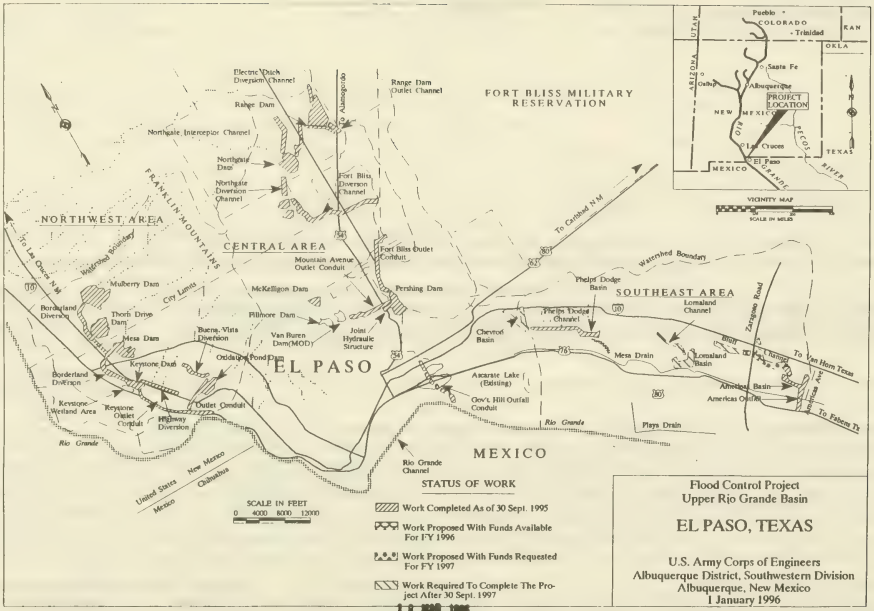
STATUS OF LOCAL COOPERATION: The project sponsor, the city of El Paso, executed a Section 221 agreement on 31 August 1972 which was approved by the Secretary of the Army on 7 September 1972. The city of El Paso is acquiring rights-of-way for each item of construction as required.

The Local Cooperation Agreement for construction in the Southeast Area was executed with the city of El Paso, Texas, in September 1988. The current non-Federal cost estimate of $24,300,000, for the southeast area, which includes a cash contribution of $3,900,000 is an increase of $2,600,000 from the non-Federal cost estimate of $21,700,000 noted in the Local Cooperation Agreement, which included a cash contribution of $3,700,000. In the Local Cooperation Agreement, the non-Federal Sponsor indicated that it is financially capable and willing to contribute the non-Federal share. Our analysis of the non-Federal Sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment. By letter dated 14 March 1989, the city of El Paso agreed to sponsor the project construction for Pershing Dam Safety Modification. As local sponsor the City participated in the project construction in accordance with the existing 221 Agreement as modified by P.L. 99-662. No land acquisition was required to perform the modification to the dam.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $113,400,000 is the same as the latest estimate ($113,400,000) presented to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement for the Central Area was filed with the Council on Environmental Quality in November 1970. The final Environmental Impact Statement for the Northwest Area was submitted to the Council on Environmental Quality in November 1977. The final Environmental Impact Statement for the Southeast Area was filed with the Environmental Protection Agency in November 1987.

OTHER INFORMATION: Funds to initiate engineering and design were appropriated in Fiscal Year 1967, and for construction in Fiscal Year 1970. Funds to initiate construction of the Southeast Area were appropriated in Fiscal Year 1988. The completion date for the project is currently being determined.



Flood Control Project
Upper Rio Grande Basin

EL PASO, TEXAS

U.S. Army Corps of Engineers
Albuquerque District, Southwestern Division
Albuquerque, New Mexico
1 January 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: McGrath Creek, Wichita Falls, Texas (Continuing)

LOCATION: The project is located in the northern central portion of Texas, in the city of Wichita Falls.

DESCRIPTION: The project consists of a new spillway at Sikes Lake and a 0.7-mile concrete lined channel along McGrath Creek between Sikes Lake and the confluence with Holliday Creek.

AUTHORIZATION: Water Resources Development Act of 1988.

REMAINING BENEFIT-REMAINING COST RATIO: 1.9 to 1 at 8½ percent.

TOTAL BENEFIT-COST RATIO: 1.2 to 1 at 8½ percent.

INITIAL BENEFIT TO COST RATIO: 1.3 to 1 at 8½ percent (FY 1994).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest evaluation completed in May 1992, at October 1992 price levels.

SUMMARIZED FINANCIAL DATA

			ACCUM. PCT. OF EST. FED. COST
Estimated Federal Cost		$ 7,580,000	
Estimated Non-Federal Cost		4,220,000	
Cash Contribution	$ 590,000		
Other Costs	3,630,000		
Total Estimated Project Cost		$ 11,800,000	
Allocations to 30 September 1995		2,815,000	
Conference Allowance for FY 1996		110,000	
Allocation for FY 1996		101,000 1/	
Allocations through FY 1996		2,916,000	38
Allocation Requested for FY 1997		900,000	50

1/ Reflects $9,000 reduction assigned as savings and slippage.

STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	0	Being Determined

PHYSICAL DATA

Channel:
Length - 0.7 mile
Bottom Width - 12 ft.

Spillway: Side discharge ogee weir
Design discharge - 6010 cfs

SUMMARIZED FINANCIAL DATA (Continued)

Division: Southwestern **District:** Tulsa **Project:** McGrath Creek, Wichita Falls, Texas

1807

Programmed Balance to Complete after FY 1997	3,764,000
Unprogrammed Balance to Complete after FY 1997	0

JUSTIFICATION: The project will provide protection from periodic floods which have inundated the city numerous times in past years during periods of heavy spring and summer rains and storms. The flood of record occurred in May 1982 and caused damages estimated at $33,147,000 using 1 October 1995 price levels. The project would provide protection from the 100-year flood. Average annual benefits are $1,211,000, all flood control, based on October 1992 price levels.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue construction	$765,000
Planning Engineering & Design	23,000
Construction Management	112,000
Total	$900,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in Water Resources Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	**Payments During Construction**	**Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Cost**
Provide lands, easements, rights-of-way and dredged material disposal areas.	$ 670,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	2,960,000	
Pay five percent of the costs allocated to flood control and bear all cost of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	590,000	13,800
Total Non-Federal Costs	$4,220,000	$13,800

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

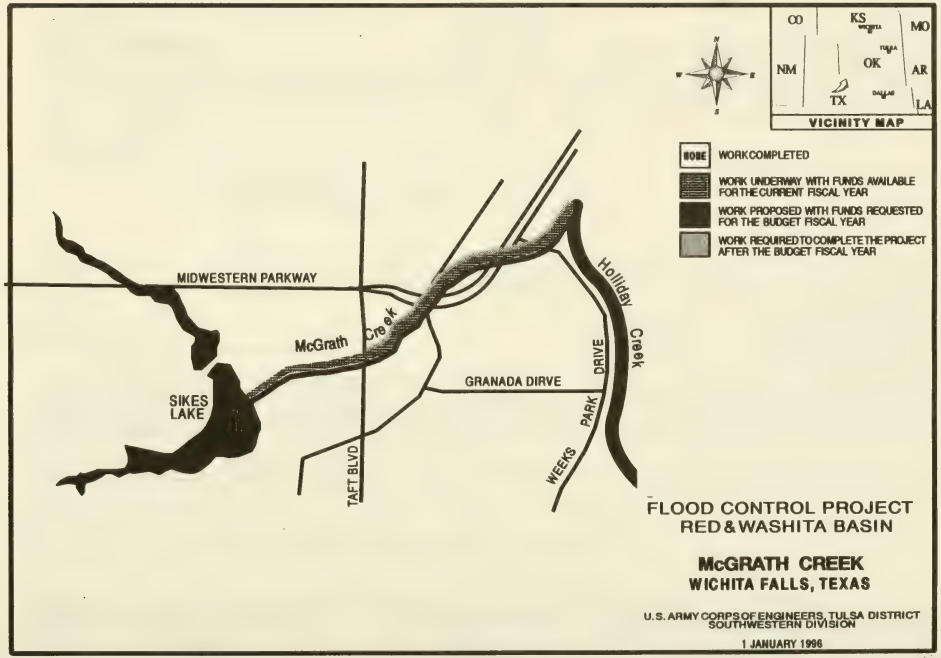
STATUS OF LOCAL COOPERATION: The Project Cooperation Agreement (PCA) was executed 21 November 1994.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $7,580,000 is an increase of $310,000 from the estimate ($7,270,000) as last presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$310,000
Total	$310,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency on 22 January 1988.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1990 and funds to initiate construction were appropriated in Fiscal Year 1994. Authorization of the project, as set forth in the Water Resources Development Act of 1988, provides that 3.3 acres of project land be planted with trees and shrubs for mitigation of fish and wildlife losses. The total estimated cost for mitigation is $5,000. No additional land is required.


CO
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WORK COMPLETED
WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR
WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR
MIDWESTERN PARKWAY
McGrath Creek
SIKES LAKE
TAFT BLVD
GRANADA DIRVE
WEEKS PARK DRIVE
Holliday Creek
FLOOD CONTROL PROJECT
RED & WASHITA BASIN
McGRATH CREEK
WICHITA FALLS, TEXAS
U.S. ARMY CORPS OF ENGINEERS, TULSA DISTRICT
SOUTHWESTERN DIVISION
1 JANUARY 1996

18 MAR 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: San Antonio Channel Improvement, Texas (Continuing)

LOCATION: The project is located in the city of San Antonio, Bexar County, Texas.

DESCRIPTION: The project includes local protection features including channels, levees and two diversion tunnels.

AUTHORIZATION: Flood Control Act of 1954 and the Water Resources Development Act of 1976.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable, since the project is essentially complete.

TOTAL BENEFIT-COST RATIO: 2.6 to 1 at 2-1/2 percent.

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 2-1/2 percent (FY 1957).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in May 1987 at 1987 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST
Estimated Federal Cost		$147,410,000	
Estimated Non-Federal Cost		65,280,000	
Cash Contributions	$ 3,880,000		
Other Costs	61,400,000		
Total Estimated Project Cost		$212,690,000	
Allocations to 30 September 1995		139,803,000	
Conference Allowance for FY 1996		7,097,000	
Allocation for FY 1996		6,007,000 1/	
Allocations through FY 1996		145,810,000	99

STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Entire Project	99	Mar 1997

PHYSICAL DATA

Channels: 30.7 miles
Concrete drop structure: one
Relocations:
Railroad: alteration to 11 bridges ($560,000)
Tunnels:
San Pedro Creek, 6,040 feet in length
San Antonio River, 16,360 feet in length

1/ Reflects $588,000 reduction assigned as savings and slippage, and $502,000 reprogrammed from the project.

SUMMARIZED FINANCIAL DATA (Continued)		ACCUM. PCT. OF EST. FED. COST
Allocation Requested for FY 1997	1,600,000	100
Programmed Balance to Complete after FY 1997	0	
Unprogrammed Balance to Complete after FY 1997	0	

JUSTIFICATION: The improvements will provide a high degree of protection to the metropolitan area of San Antonio which has been subject to disastrous floods and heavy loss of life in the past. Approximately 3,085 acres of urban lands are subject to flooding in San Antonio. Value of land and improvements that would be protected from the design flood is estimated at $1,011,000,000 based on 1994 price levels. The maximum flood of record occurred in September 1921 causing $949,000 in damages and affected areas totaling 2,900 acres. A recurrence of this flood under current conditions and October 1995 price levels would result in damages estimated at $70,739,000 of which $69,240,000 would be prevented with the project in full operation. The last major flood occurred in August 1992 during which $11,300,000 in damages were prevented by completed portions of the project. The estimated average annual benefits, based on October 1987 price levels, are as follows:

Annual Benefits	Amount
Flood Control	$ 13,466,000
Land Enhancement	915,000
Total	$ 14,381,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Complete Construction of Tunnels Phase IV - Outlet	$ 1,280,000
Planning, Engineering and Design	46,000
Construction Management	274,000
Total	$ 1,600,000

NON-FEDERAL COST: In accordance with the authorizing act, Flood Control Act of 1954, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Costs
Provide lands, relocation payments, and assistance to displaced persons.	$ 16,541,000	
Modify and relocate/reconstruct channel dams, bridges and utilities.	32,861,000	
Channel rectification.	11,998,000	
Pay 2.65 percent of Federal construction costs, based on land enhancement benefits, and bear all costs of operation, maintenance and replacement of flood control facilities.	3,880,000	$ 918,000
Total Non-Federal Costs	$ 65,280,000	$ 918,000

The Non-Federal Sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The San Antonio River Authority, a State agency, by an ordinance passed on 28 February 1956, agreed to comply with all the requirements of local cooperation. This was supplemented by an agreement dated 14 January 1972, which addressed the authorizing requirements of Public Law 91-646. Under a contract of 12 September 1955, the Authority was authorized to expend $12,000,000 on capital improvements; however, due to continuous increase in cost of construction and relocations, added channel improvement below Bergs Mill, increased land values, and local interests costs required by the Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970, the Authority estimates $65,200,000 will now be required. Cash contributions in the amount of $3,511,000 have been received from the Authority through September 1995 in compliance with requirements of the Flood Control Act of 1954. Rights-of-way have been furnished as required for construction performed to date. Thus far, local interests have expended approximately

STATUS OF LOCAL COOPERATION (continued):

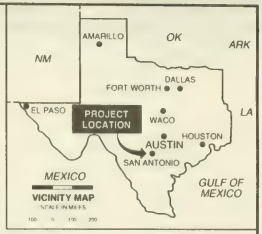
$65,000,000 for lands, required modifications of utilities and bridges, channel rectification, relocation/reconstruction of channel dams, payments required for relocation assistance, and required cash contributions.
In addition, local interests have incurred operations and maintenance costs of $4,555,000 for reconstruction of Olmos Dam in the late 1970's and early 1980's when it was determined that the existing dam was in danger of overturning in certain flooding conditions. Olmos Dam is a flood control detention reservoir with no permanent storage. It was constructed during 1925-26 at a cost of approximately $1,575,000. The dam will continue to operate in conjunction with the San Antonio Channel Improvement project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $147,410,000 is an increase of $2,110,000 over the latest estimate ($145,300,000) submitted to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ (-) 82,000
Post Contract Award and Other Estimating Adjustments (Including Contingency Adjustments)	2,192,000
Total	$ 2,110,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 9 November 1971. The final Supplemental Environmental Impact Statement for Unit 8-3-2 was filed with the Environmental Protection Agency on 13 February 1981. An Environmental Assessment for the tunnels on Units 8-4, 8-5-1, and 7-3-1 resulted in a Finding Of No Significant Impact which was signed by the District Engineer 20 May 1986. The Environmental Assessment is being updated to reflect the addition of some channelization at the San Antonio River Tunnel Outlet and is scheduled to be completed in February 1995. Also, an Environmental Assessment for San Pedro Creek Unit 7-3-2 resulting in a Finding of No Significant Impact was signed by the District Engineer on 13 August 1993.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1956 and for construction in Fiscal Year 1957. The scheduled completion date of March 1997 for programmed work is a slippage from the latest completion date of October 1996 presented to Congress (FY 1996). This change is due to an adjustment in construction of the San Antonio River Tunnel Outlet Facilities. Additional time is required to remove hazardous waste from the construction site.



HIGH WATER LINE FLOOD OF RECORD (SEP. 1921)

STATUS OF WORK
(Percentage)

	Completed As of 30 Sept. 1995	Proposed With Funds Available for FY 1996	Proposed With Funds Requested for FY 1997
Trash Racks (Tunnel Inlets)	17	83	0
Phase IV - Part 1 (SART Inlet)	67	33	0
Phase IV - Part 2 (SART 8 Outlet)	12	68	20
San Pedro - Unit 7-3-2	90	10	0
All Other	100	0	0

SAN ANTONIO RIVER AND TRIBUTARIES, TEXAS

CHANNEL IMPROVEMENT
SAN ANTONIO, TEXAS

1 JANUARY 1996

U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS
SOUTHWESTERN DIVISION

APPROPRIATION TITLE: Construction General - Local Protection (Flood Control)

PROJECT: Sims Bayou, Houston, TX (Continuing)

LOCATION: The project is located in Harris County, in the southern portion of Houston, Texas.

DESCRIPTION: The project provides flood damage reduction and consists of 19.3 miles of channel enlargement, rectification, and erosion control measures. Environmental quality measures, riparian habitat improvements, and recreational features are also included in the project.

AUTHORIZATION: Water Resources Development Act (WRDA) of 1986, Energy and Water Development Appropriations Act of 1990, and WRDA of 1992.

REMAINING BENEFIT-REMAINING COST RATIO: 10.1 to 1 at 8 5/8 percent.

TOTAL BENEFIT-COST RATIO: 6.8 to 1 at 8 5/8 percent.

INITIAL BENEFIT-COST RATIO: 9.3 to 1 at 8 5/8 percent (FY 1990).

BASIS OF BENEFIT-COST RATIO: Benefits are from Supplement 1 to the General Design Memorandum dated May 1993 at October 1992 price levels. Costs are based on the GDM Supplement 1 at October 1992 price levels, Design Memorandums 5, 6, and 7 approved July 1994, May 1995, and July 1994 respectively and updated to October 1995 price levels.

1816

SUMMARIZED FINANCIAL DATA		ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	$203,600,000		Entire Project	24	Being Determined
Estimated Non-Federal Cost	98,700,000				
Cash Contribution	$17,820,000				
Other Costs	80,880,000				
Total Estimated Project Cost	$302,300,000				

Allocations to 30 September 1995	$ 22,479,000	
Conference Allowance for FY 1996	12,000,000	
Allocation for FY 1996	13,005,000 1/	
Allocations through FY 1996	34,484,000	17
Allocation Requested for FY 1997	11,200,000	22
Programmed Balance to Complete after FY 1997	157,916,000	
Unprogrammed Balance to Complete after FY 1997	0	

PHYSICAL DATA

Channels:
- Sims Bayou - 19.3 miles

Relocations:
- Railroad bridges
- Utilities
- Roads

Recreation facilities
- Hike-and-bike trails
- with picnic and other day-use facilities

1/ Reflects $995,000 reduction assigned as savings and slippage and $2,000,000 reprogrammed to the project.

JUSTIFICATION: The project will eliminate stream flooding from 14,800 acres of urban lands and beneficially affect nearly 78,000 persons living in 29,000 homes. The 100-year flood plain would be reduced to 2,300 acres outside the required rights-of-way. The recreational development will partially satisfy existing demand in the area. Average annual benefits, annualized at an 8-5/8% interest rate and based on October 1992 prices are as follows:

Annual Benefits	**Amount**
Flood Damage Prevention	$219,344,700
Recreation	945,300
Total	$220,290,000

FISCAL YEAR 1997: The requested amount of $11,200,000 will be applied as follows:

Complete Fish & Wildlife facilities	$ 168,000
Complete Cultural Resource preservation	15,000
Initiate channel rectification - Hemingway to Swallow	3,449,000
Complete Union Pacific Railroad bridge relocation	443,000
Complete AT&SF Railroad bridge relocation	67,000
Complete channel rectification - Reveille to Hemingway	3,112,000
Complete channel rectification - I-45 to Reveille	197,000
Federal Review of Land Acquisitions	200,000
Planning, Engineering, and Design	949,000
Construction Management	600,000
Reimbursement to Local Sponsor	2,000,000
Total	$11,200,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas.	$36,100,000	
Modify or relocate, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	44,500,000	
Pay one-half of the separable costs allocated to recreation and bear all cost of operation, maintenance, repair, rehabilitation and replacement of recreation facilities.	2,950,000	$139,000
Pay 5 percent of the costs allocated to flood control, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	14,870,000	331,000
Credit for future preparation of the dredged material disposal area for the Mouth to PTRR reach and completed miscellaneous engineering and design activities.	280,000	
Total Non-Federal Costs	$98,700,000	$470,000

The non-Federal sponsors must also agree to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The sponsor for the flood control project is Harris County. The current non-Federal cost estimate of $95,750,000 for flood control, which includes a cash contribution of $14,870,000, is an increase of $9,150,000 from the non-Federal cost estimate of $86,600,000 noted in the Local Cooperation Agreement (LCA), which reflected a cash contribution of $13,800,000. In a letter dated 19 September 1991, the non-Federal sponsor indicated that it is financially capable and willing to contribute the increased non-Federal share. Our analysis (dated 31 October 1991) of the non-Federal sponsor's financial capability to participate in the project reaffirms that the sponsor has a reasonable and implementable plan for meeting their financial commitment as expressed in the LCA. The City of Houston has indicated its desire to sponsor the recreation features for the project. The Project Cooperation Agreement (PCA) with the City for recreation is pending the City's updating its desired recreational features.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $203,600,000 is a decrease of $9,100,000 from the latest estimate of $212,700,000 (FY 1996). This change includes the following items.

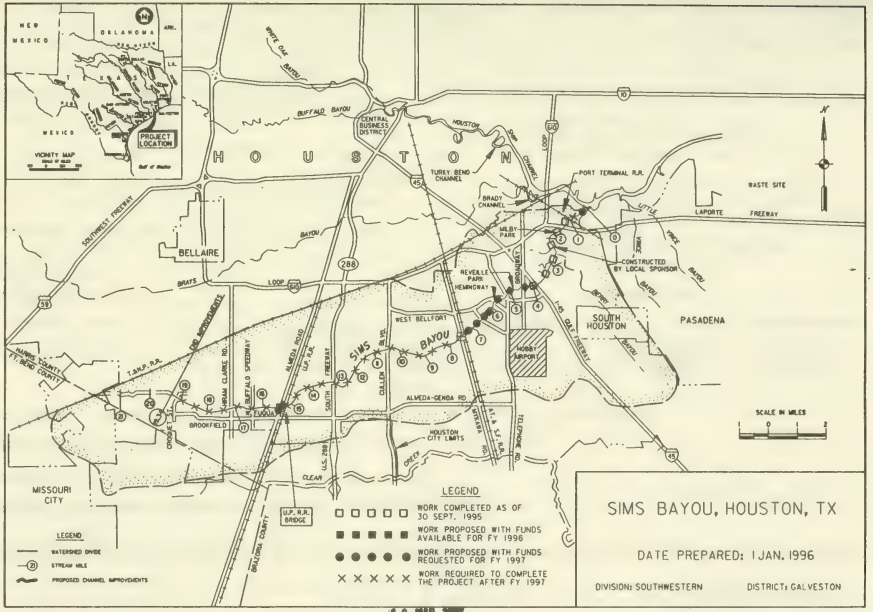
Item	Amount
Price Escalation on Construction Features	$ 1,422,000
Post Contract Award and Other Estimating Adjustments	$ (-)10,522,000
Total	$ (-) 9,100,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency in September 1983.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1986 and funds to initiate construction were appropriated in Fiscal Year 1990.

The Assistant Secretary of the Army for Civil Works has approved the sponsor's request for credit for work performed by the local sponsor. This credit is currently estimated at $20,070,000, exclusive of lands and is being reimbursed during the period of construction. The project authorization was amended by the Energy and Water Development Appropriations Act of 1990 as the project cost estimate exceeded the maximum cost growth as described in Section 902 of the Water Resources Development Act of 1986. The authorization has been further modified by WRDA '92, Section 102 (66), to include, to the extent practicable, measures to improve environmental quality and riparian habitat.

1820



1821

18 MAR 1996

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Abiquiu Dam (Emergency Gates), New Mexico (Continuing)

LOCATION: The project is located in Rio Arriba County on the Rio Chama near the City of Española, New Mexico.

DESCRIPTION: The project consists of installing two emergency gates in the existing control structure to ensure the operational integrity of the control structure for its authorized purpose.

AUTHORIZATION: The Water Resources Development Act of 1986 (Sec 1112).

REMAINING BENEFIT - REMAINING COST RATIO: 1.9 to 1 at 8 percent.

TOTAL BENEFIT - COST RATIO: 1.8 to 1 at 8 percent.

BASIS OF BENEFIT - COST RATIO: 903(a) Report approved June 1990 at October 1989 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$ 4,200,000		Entire Project	0	Being Determined
Estimated Non-Federal Cost			0			
Cash Contribution	$ 0					
Other Costs	0					
Total Estimated Project Cost		$ 4,200,000				
Allocations to 30 September 1995		$ 270,000				
Conference Allowance for FY 1996		1,200,000				
Allocation for FY 1996		200,000 1/				
Allocations through FY 1996		470,000	11			
Allocations Requested for FY 1997		1,000,000	35			
Programmed Balance to Complete after FY 1997		2,730,000				
Unprogrammed Balance to Complete after FY 1997		0				

PHYSICAL DATA

Outlet Works - Installation of 2 Emergency gates in the existing outlet conduit.
Height of dam - 325 feet
Diameter of control outlet - 12 feet
Head of Water - 150 feet

1/ Reflect $100,000 assigned as savings and slippage and $900,000 reprogrammed from the project.

1822

JUSTIFICATION: Abiquiu Dam was put into operation in 1963 as a dry flood control dam with a single set of service gates. Because the dam was not intended for permanent storage behind the dam. Due to the permanent pool, the only way to de-water the conduit to perform maintenance on the existing service gates is through retrieval and placement of underwater bulkheads. This process requires mobilization of a barge mounted crane and a diving team for several days, and costs up to $250,000. Setting the bulkheads on a routine basis for maintaining the service gates is obviously not within the capability of the O&M program, and would certainly not be a reliable alternative should a problem occur with the service gates. Installing a set of emergency gates is the most cost effective method for ensuring the operational safety and integrity of the dam for flood control and sediment retention. Average annual benefits are $501,000 based on October 1989 price levels as follows:

Annual Benefits	**Amount**
Reduction in Maintenance Costs	$ 229,000
Water Loss Prevention	151,000
Sedimentation	58,000
Recreation	62,000
Flood Control	1,000
Total	$ 501,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate Fabrication and Construction of Gates	$ 820,000
Planning, Engineering and Design	90,000
Construction Management	90,000
Total	$ 1,000,000

NON-FEDERAL COST: Construction shall be accomplished at full Federal expense.

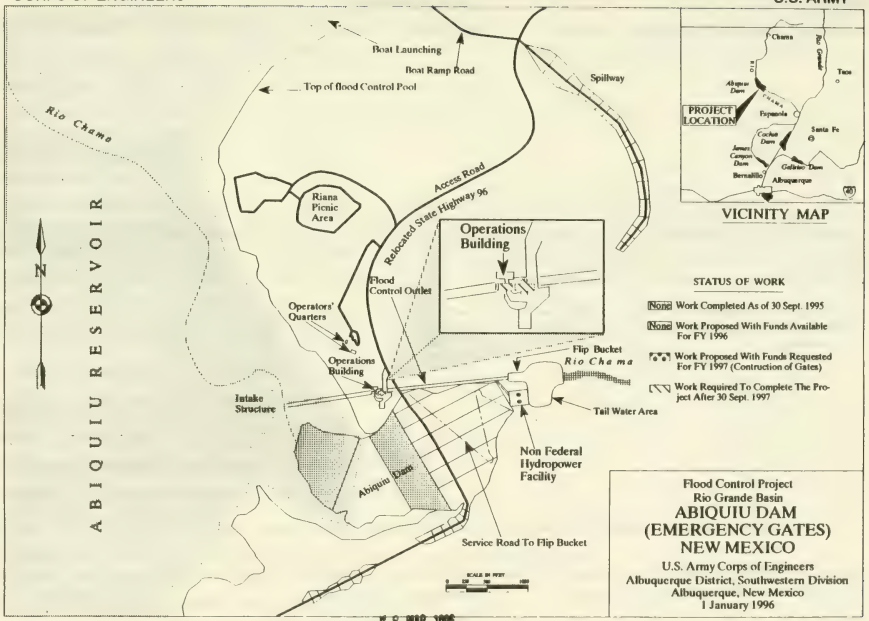
STATUS OF LOCAL COOPERATION: Not Applicable

COMPARISON OF FEDERAL COST ESTIMATES: The Federal cost estimate of $4,200,000 is the same as the latest estimate presented to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The draft Environmental Assessment accompanied the 903a report. The Finding of No Significant Impact (FONSI) is scheduled to be completed in June 1996.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1989. Funds to initiate construction were appropriated in Fiscal Year 1996. The completion date for the project is currently being determined.

1824



16 MAR 1996

1825

APPROPRIATION TITLE: Construction, General - Reservoirs

PROJECT: Acequias Irrigation System, New Mexico (Continuing)

LOCATION: There are about one thousand recognized Acequias throughout the state of New Mexico. Most are located in north-central New Mexico in the counties of Mora, Rio Arriba, Santa Fe, San Miguel and Taos.

DESCRIPTION: Protect and restore river diversions and associated canals of community Acequia systems in New Mexico.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable. 1/

TOTAL BENEFIT - COST RATIO: Not applicable. 1/

INITIAL BENEFIT - COST RATIO: Not applicable. 1/

BASIS OF BENEFIT - COST RATIO: Not applicable. 1/

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST
Estimated Federal Cost		$63,900,000	
Estimated Non-Federal Cost		21,300,000	
Cash Contribution	$21,300,000		
Total Estimated Project Cost		$85,200,000	
Allocations to 30 September 1995		10,364,000	

STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Diversion Structures		Being
Canals and Ditches	18	Determined

1/ Project was authorized without regard to economic analysis in accordance with Section 1113 of the Water Resources Development Act of 1986.

1826

SUMMARIZED FINANCIAL DATA (continued)		ACCUM. PCT. OF EST. FED. COST
Conference Allowance for FY 1996	1,500,000	
Allocation for FY 1996	1,376,000 2/	
Allocations through FY 1996	11,740,000	18
Allocation Requested for FY 1997	300,000	19
Programmed Balance to Complete after FY 1997	51,860,000	
Unprogrammed Balance to Complete after FY 1997	0	

2/ Reflects $124,000 reduction assigned as savings and slippage.

JUSTIFICATION: The acequia community ditch systems provide irrigation water to about 160,000 acres on an estimated 12,000 farms. About seventy percent of the farms average less than twenty acres in size and are used for subsistence farming. Acequias have been in existence since the early Spanish Colonization period of the 17th and 18th centuries and represent one of the oldest forms of cooperative institutions in the U.S. They are an integral part of the culture and heritage of New Mexico. Justification for the project is based upon the historic and social significance the Acequias have for the local residents and the major role they play in the overall local economy. Flood damages to the acequia diversion dams and main delivery systems and subsequent interruption of water flow to the systems can have a devastating effect on the irrigators. At the most critical times for irrigation, high flood flows from spring snowmelt at the beginning of the irrigation season and from intense summer thunderstorms during the peak of irrigation cause structural damage or complete loss of ditch structures needed for delivering water to crops.

FISCAL YEAR 1997: The requested amount of $300,000 will be applied as follows:

Continue Rehabilitation of Acequias	$ 200,000
Planning, Engineering and Design	50,000
Construction Management	50,000
Total	$ 300,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursement	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Cost
Pay 25 percent of the costs of Acequias restoration.	$21,300,000	$ 0 1/
Total Non-Federal Cost	$21,300,000	$ 0 1/

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

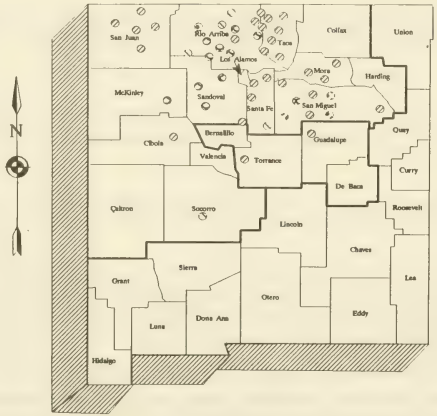
1/ Operation, maintenance, repair, rehabilitation and replacement costs historically are the responsibility of each acequia organization.

STATUS OF LOCAL COOPERATION: The local sponsor, the State of New Mexico, has enacted legislation whereby the State provides 17-1/2% of the project costs and low interest loans to the local Acequias for the remaining 7-1/2% of the non-Federal share. The State of New Mexico has appropriated, on an annual basis, the funds necessary to meet the requirements of local sponsorship. Local Cooperation Agreements have been signed for funds appropriated in Fiscal Year 1988, Fiscal Year 1989, and Fiscal Year 1990. The general Local Cooperation Agreement to cover all the Acequias within the State for remaining work after Fiscal Year 1990 was executed in June 1992. A supplement to this LCA will be executed each year, under the authority of the Division Commander.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $63,900,000 is the same as the latest estimate ($63,900,000) presented to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment is being prepared for each Acequia Restoration Project. A signed Finding of No Significant Impact will be filed with the Environmental Assessment, prior to the issuance of the Notice to Proceed to the contractor, if the restoration activities do not have a significant environmental effect.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1987. Funds to initiate construction were appropriated in Fiscal Year 1988. The authorizing legislation provides that the historical acequia systems of the Southwestern United States be considered as public entities if these systems are chartered by the respective State laws as political subdivisions of that state. The state of New Mexico is the local sponsor for all the Acequias projects within the State. The completion date for this project is being determined.



STATE OF NEW MEXICO

SCALE IN MILES
0 40 80 120 160

STATUS OF WORK

- Work completed as of 30 Sept 1995
- Work proposed with funds available for FY 1996
- Work proposed with funds requested for FY 1997
- Work required to completed the project after 30 Sept. 1997

ACEQUIAS IRRIGATION SYSTEM
NEW MEXICO

U.S. Army Corps of Engineers
Albuquerque District, Southwestern Division
Albuquerque, New Mexico
1 January 1996

1830

18 MAR 1996

APPROPRIATION TITLE: Construction, General - Reservoirs (Flood Control)

PROJECT: Ray Roberts Lake, Texas (Continuing)

LOCATION: Ray Roberts Dam is located at river mile 60.0 on the Elm Fork of the Trinity River in Denton County, Texas and 30 miles upstream from the existing Lewisville Dam.

DESCRIPTION: The project is a multipurpose reservoir with an earthfill dam, recreational park areas and a greenbelt corridor along with Elm Fork connecting it to the upstream reaches of Lewisville Lake. The reservoir storage capacity is 1,064,600 acre-feet (260,800 flood control, 749,200 water supply and 54,600 sediment reserve).

AUTHORIZATION: River and Harbor Act of 1965 and Water Resources Development Act of 1990.

REMAINING BENEFIT-REMAINING COST RATIO: 7.9 to 1 at 3-1/4 percent.

TOTAL BENEFIT-COST RATIO: 2.1 to 1 at 3-1/4 percent.

INITIAL BENEFIT-COST RATIO: 2.4 to 1 at 3-1/4 percent (FY 1975).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluations approved in August 1980 at 1979 price levels for the reservoir project and approved 24 December 1987 at October 1984 price level for the Greenbelt Corridor.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Total Appropriation Requirement		$317,450,000		Entire Project	98	Jul 1997
Future Non-Federal Reimbursement		207,670,000				
Estimated Federal Cost (Ultimate)		109,780,000				
Estimated Non-Federal Cost		$207,670,000				
Reimbursements	$207,670,000					
Water Supply	$181,714,000					
Recreation	25,956,000					
Total Estimated Project Cost		$317,450,000				

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1995	$310,167,000	
Conference Allowance for FY 1996	3,500,000	
Allocations for FY 1996	4,279,000 1/	
Allocations through FY 1996	314,446,000	99
Allocation Requested for FY 1997	3,004,000	100
Programmed Balance to Complete after FY 1997	0	
Unprogrammed Balance to Complete after FY 1997	0	

1/ Reflects $290,000 reduction assigned to savings and slippage, and $1,069,000 reprogrammed to the project.

PHYSICAL DATA

Dam

Type - Rolled earth
Height - 141 feet (max above streambed)
Length - 14,965 feet

Spillway

Type - Uncontrolled Broadcrested
Length - 100 feet
Design Capacity (Max Pool)
- 14,500 cubic feet per second

Relocations

Roads	- 42.5 miles	($37,835,000)
Railroads	- 2.7 miles	($ 7,127,000)
Cemeteries, Utilities, and Structures -		($13,223,000)

Ray Roberts Lake Lands

Fee	- 47,000 acres
Flowage easements	- 2,302 acres
Total	49,302 acres

Greenbelt Corridor Lands

Fee	- 1,087 acres
Conservation - Easement	502 acres
Total	1,589 acres

Lewisville Lake Lands

Fee - 463 acres

Type - Predominantly agriculture
Improvement - Varied farm and ranch units

JUSTIFICATION: The project is an authorized element in the plan of improvement of the Trinity River Basin. Ray Roberts Lake permitted reallocation of flood control storage from Lewisville Lake in exchange for corresponding water supply (conservation) storage. The project will provide 74.3 million gallons per day for municipal and industrial water supply and satisfy recreation needs of 6,000,000 user days annually (includes increases due to Lewisville Modification). The estimated average annual benefits, based on October 1979 price levels are as follows:

Annual Benefits	**Amount**
Water Supply	$10,246,000
Recreation	7,052,000
Total	$17,298,000

FISCAL YEAR 1997: The requested amount will be applied as follows:

Complete Greenbelt Construction	$ 2,573,000
Complete Real Estate Administration	64,000
Planning, Engineering and Design	14,000
Construction Management	353,000
Total	$ 3,004,000

NON-FEDERAL COST: In accordance with the authorizing acts, the Rivers and Harbors Act of 1965, and the Water Resources Development Act of 1990 the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation and Replacement Costs
Pay all costs allocated to municipal and industrial water supply and bear all costs of operation, maintenance and replacement of municipal and industrial water supply facilities.	$181,714,000	$ 342,000
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance and replacement of recreation facilities.	19,700,000	1,532,000
Pay sixty-two and one-half percent of the separable costs allocated to the Greenbelt Corridor recreation and bear all costs of operation, maintenance and replacement of recreation facilities.	6,256,000	182,000
Total Non-Federal Costs	$207,670,000	$2,056,000

The non-Federal sponsors, the cities of Dallas and Denton, have agreed to repay their share of the construction costs within a period of 50 years following completion of construction.

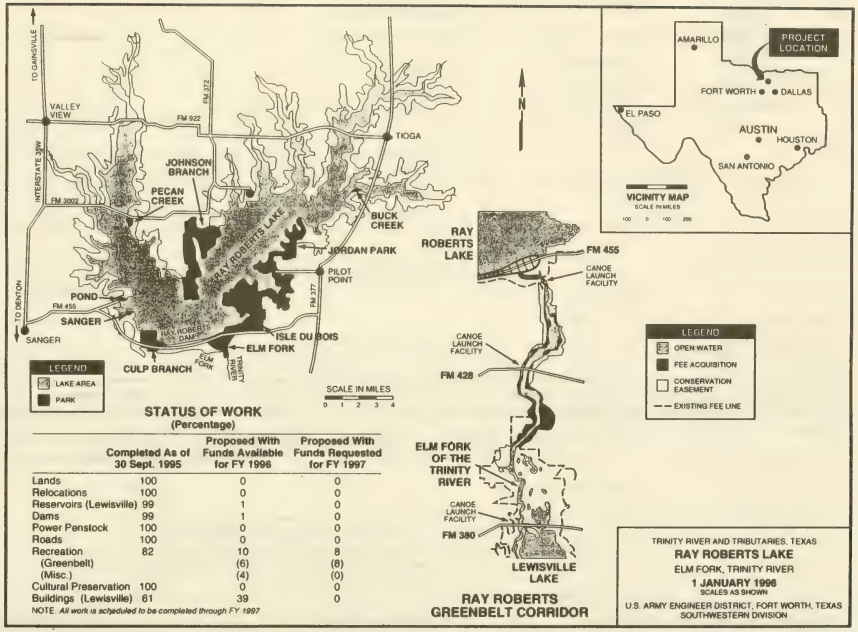
STATUS OF LOCAL COOPERATION: Water supply and recreation contracts with the cities of Dallas and Denton were approved by the Assistant Secretary of the Army on 16 September 1980. The recreation contracts with the cities of Dallas and Denton were modified to include cost sharing of the Greenbelt Corridor. The contracts were approved by the Assistant Secretary of the Army on 6 October 1993, and were signed by all parties on 1 June 1994.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $317,450,000 is an increase of $2,250,000 from the latest estimate ($315,200,000) presented to Congress (FY 1996). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ (-) 8,000
Post Contract Award and Other Estimating Adjustments (including contingency adjustments)	2,417,000
Price Escalation on Real Estate	(-)159,000
Total	$2,250,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 4 March 1974. An updated supplement was filed on 18 September 1975.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1970 and for initiation of construction in Fiscal Year 1975. Land acquisition was initiated in September 1980 and construction was initiated in September 1981. The Greenbelt Corridor between Ray Roberts Dam and Lewisville Lake was authorized by the Water Resource Development Act of 1990.



STATUS OF WORK
(Percentage)

	Completed As of 30 Sept. 1995	Proposed With Funds Available for FY 1996	Proposed With Funds Requested for FY 1997
Lands	100	0	0
Relocations	100	0	0
Reservoirs (Lewisville)	99	1	0
Dams	99	1	0
Power Penstock	100	0	0
Roads	100	0	0
Recreation	82	10	8
(Greenbelt)		(6)	(8)
(Misc.)		(4)	(0)
Cultural Preservation	100	0	0
Buildings (Lewisville)	61	39	0

NOTE: *All work is scheduled to be completed through FY 1997*

1836

APPROPRIATION TITLE: Construction, General - Reservoirs (Flood Control)

PROJECT: Red River Basin Chloride Control, Texas and Oklahoma (Continuing)

LOCATION: The project is located in Cottle, Foard, Hall, and King Counties, Texas, and Harmon County, Oklahoma, along the Wichita and Red Rivers. Area VI is located on the Elm Fork of the Red River in Harmon County, Oklahoma; Area VII is located on the North Fork of the Wichita River, Cottle County, Texas; Crowell Brine Lake in Foard County Texas, is on Canal Creek, a tributary of the Pease River; Area VIII is located on the south fork of the Wichita River, King County, Texas; Area IX is on the Middle Pease River, Cottle County, Texas; Area X is on the Middle Fork of the Wichita River, King County, Texas; Areas XIII-XIV are on the Jonah and Salt Creeks of Prairie Dog Town Fork, of the Red River, Hall County, Texas.

DESCRIPTION: The purpose of the project is to improve water quality for municipal and industrial and agricultural water supply. The plan of improvement consists of one deep well injection system, three brine storage reservoirs, four low-flow brine collection dams, two well collection facilities, six pumping plants, and 56.3 miles of pipeline.

AUTHORIZATION: Section 203, Flood Control Act of 1966, Public Law 89-789, 7 November 1966, Arkansas-Red River Basins, TX, OK and KS, Part I.

Section 201, Flood Control Act of 1970, Public Law 91-611, 31 December 1970, Arkansas-Red River Basins Water Quality Control Study, TX, OK, and KS, Part II.

Section 74, Water Resources Development Act of 1974, Public Law 93-251, 7 March 1974.

Section 153, Water Resources Development Act of 1976, Public Law 94-587, 22 October 1976.

Section 1107, Water Resources Development Act of 1986, Public Law 99-662, 17 November 1986, General Design Phase I Plan Formulation, Volumes I and II (Design Memorandum No. 25, November 1980).

REMAINING BENEFIT-REMAINING COST RATIO: 1.4 to 1 at 8¼ percent.

TOTAL BENEFIT-COST RATIO: 1.1 to 1 at 8¼ percent.

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 8¼ percent.

BASIS OF BENEFIT-COST RATIO: Benefits are from the Limited Reevaluation Report, approved 1 November 1993, at October 1992 price levels.

SUMMARIZED FINANCIAL DATA		ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	$225,000,000		Entire Project	13	Being Determined
Estimated Non-Federal Cost	0				
Total Estimated Project Cost	$225,000,000				
Allocations to 30 September 1995	40,818,000				
Conference Allowance for FY 1996	0				
Allocation for FY 1996	-1,805,000 1/				
Allocations through FY 1996	39,013,000	17			
Allocation Requested for FY 1997	0	17			
Programmed Balance to Complete after FY 1997	185,987,000				
Unprogrammed Balance to Complete after FY 1997	0				

1/ Reflects $1,805,000 reprogrammed from the project.

JUSTIFICATION: Natural chloride pollution from salt springs, seeps and from flushouts of salt flats during floods, and man-made chloride pollution, limits the use of the water of Red River for municipal, industrial, and agricultural purposes. Area VI contributes about 510 tons per day; Area IX contributes about 340 tons per day; about 570 tons per day comes from Areas XIII and XIV. Source Areas VII, VIII and X in the Wichita River Basin contribute 430 tons per day to the natural chloride pollution. Control of chloride pollution in the Red River Basin could improve lake waters from poor quality 78 percent of the time to good quality 98 percent of the time, and the Red River below Fulton, Arkansas, would be usable all of the time. Water quality improvement in the Red River Basin as a result of the recommended plan would result in an additional 186,000 acres irrigated under optimal management conditions and cropping patterns. Demand for Red River water for municipal and industrial purposes is expected to be about 304 million gallons per day by the year 2042 with the project. The average annual benefits are $29,576,000 all water quality, based on October 1992 price levels.

1838

FISCAL YEAR 1997: The total program amount, including the requested and carryover amounts of $0 and $7,306,000, respectively, with an unobligated carryover of $3,521,000 into FY 1998, will be applied as follows:

Initiate Buildings, Grounds & Utilities Area VII	$ 54,000
Initiate Ground Water Monitoring Crowell	41,000
Initiate Dams Areas IX & VII	362,000
Initiate Roads Areas VII & IX	83,000
Initiate Collection Facility & Pump Station Areas IX & VII	434,000
Initiate Land Acquisition Areas VI & XIII-XIV; and Complete Land Acquisition Areas VII & IX	133,000
Planning, Engineering, Design, & Environmental Monitoring	2,128,000
Construction Management	550,000
Total	$ 3,785,000

STATUS OF LOCAL COOPERATION: None is required. The Water Resources Development Act of 1986 authorized the project at full Federal expense. The Red River Authority of Texas has signed a 221 Agreement as the non-cost sharing non-Federal sponsor.

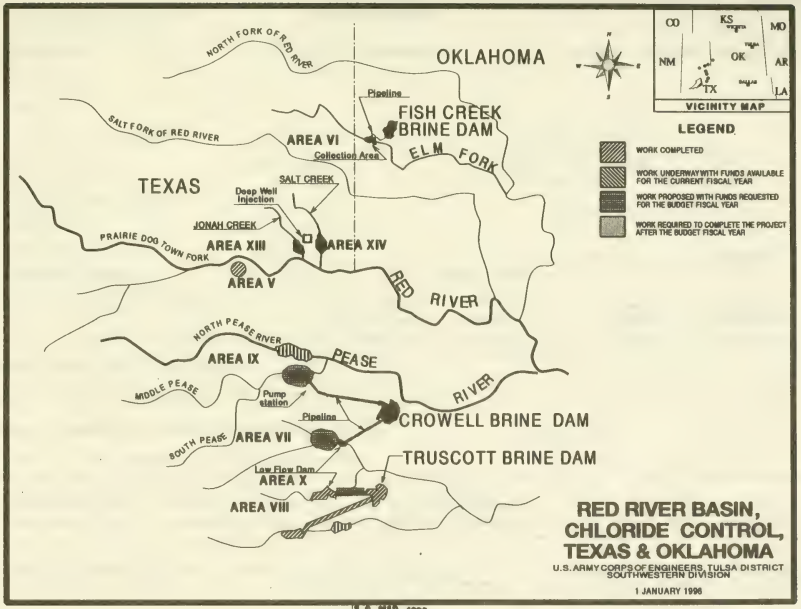
COMPARISON OF FEDERAL COST ESTIMATES: The Federal cost estimate of $225,000,000 is an increase of $10,000,000 from the estimate ($215,000,000) as last presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 6,680,000
Design Changes	3,320,000
Total	$10,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with the Environmental Protectional Agency on 18 May 1977. A Supplemental Final Environmental Impact Statement (SFEIS) is necessary to address changes in the design of the project and the environmental laws since the initial EIS was filed in 1977. A Draft Supplemental Fish and Wildlife Coordination Act Report was received on 12 August 1994, which states the intended opposition of the U. S. Fish and Wildlife Service (USFWS) as well as the Texas Parks and Wildlife Department and the Oklahoma Department of Wildlife Conservation. The draft SFEIS was submitted for public review from 5 May 95 to 5 Jul 95. The Corps of Engineers is continuing to work with the USFWS and the state natural resource agencies to more fully develop solutions to environmental issues including a comprehensive environmental monitoring plan. The final SFEIS is scheduled to be distributed for public review in May 1996, with a Record of Decision filed by July 1996.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1968 and funds to initiate construction were appropriated in FY 1991.

1840



18 MAR 1996

1841

APPROPRIATION TITLE: Construction, General - Dam Safety Assurance

PROJECT: Galisteo Dam, New Mexico (Dam Safety) (Continuing)

LOCATION: Galisteo Dam is located in Santa Fe County, New Mexico, approximately 20 miles south of Santa Fe, New Mexico, on Galisteo Creek, a tributary of the Rio Grande.

DESCRIPTION: The project consists of raising the top of the dam a maximum of 7 feet, and widening the existing spillway by 400 feet. The crest elevation will be increased by raising the dam embankment by 4 feet (to elevation 5643.0) with an earth cap, and constructing a 3 foot high floodwall on top of the new embankment.

AUTHORIZATION: Galisteo Dam is a unit of the general comprehensive plan for flood control on the Rio Grande and by the Flood Control Act of 1960, Public Law 86-645, 86th Congress.

REMAINING BENEFIT - REMAINING COST RATIO: Not Applicable.

TOTAL BENEFIT - COST RATIO: Not Applicable.

BASIS OF BENEFIT - COST RATIO: Not Applicable.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Original Project				Entire Project	0	Being Determined
Actual Federal Cost		$14,275,000				
Actual Non-Federal Cost			0			
Cash Contribution	$ 0					
Other Costs	0					
Total Original Project Cost		$14,275,000				

PHYSICAL DATA

Dam-earthfill
Ungated outlet conduit
Uncontrolled spillway 250 feet
Crest length 2,820 feet
Crest width 20 feet

SUMMARIZED FINANCIAL DATA (Continued)

Project Modification			ACCUM. PCT. OF EST. FED. COST
Estimated Federal Cost		$ 8,300,000	
Estimated Non-Federal Cost		0	
Cash Contribution	$ 0		
Other Costs	0		
Total Estimated Modification Cost		$ 8,300,000	
Total Estimated Project Cost		$22,575,000	
Allocations to 30 September 1995		$14,275,000	
Conference Allowance for FY 1996		0	
Allocation for FY 1996		265,000 1/	
Allocations through FY 1996		14,540,000	64
Allocations Requested for FY 1997		150,000	65
Programmed Balance to Complete after FY 1997		7,885,000	
Unprogrammed Balance to Complete after FY 1997		0	

1/ Reflects $265,000 reprogrammed into the project.

JUSTIFICATION: The revised probable maximum flood would overtop Galisteo Dam. Wave action and resulting erosion could precipitate failure of the structure with catastrophic effects on downstream property. The estimated value of the property within the floodplains is $5,263,000,000.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Planning, Engineering and Design	150,000
Total	$ 150,000

NON-FEDERAL COST: Construction shall be accomplished at full Federal expense.

STATUS OF LOCAL COOPERATION: Not Applicable.

COMPARISON OF FEDERAL COST ESTIMATES: The Federal cost estimate of $8,300,000 has not been previously presented to Congress.

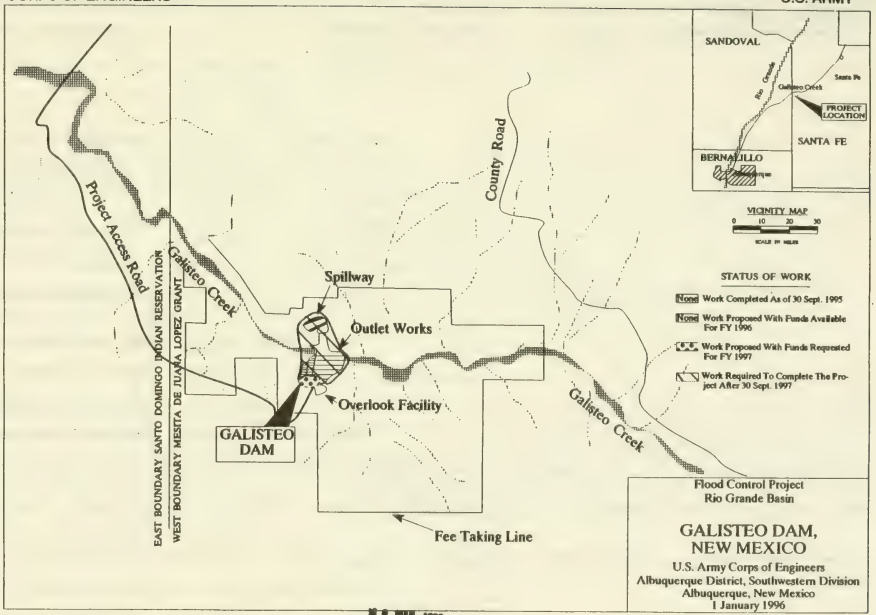
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Finding of No Significant Impact (FONSI) was signed in February 1995.

OTHER INFORMATION: Funds to initiate design were reprogrammed in Fiscal Year 1996. The completion date for the project is currently being determined.

1844

CORPS OF ENGINEERS

U.S. ARMY



N 8 MAR 1996

APPROPRIATION TITLE: Construction, General - Dam Safety Assurance

PROJECT: Sam Rayburn Dam and Reservoir, Texas (Dam Safety)

LOCATION: The existing Sam Rayburn Dam and Reservoir, Texas, is located on the Angelina River 25.2 miles upstream from its confluence with Neches River and about 10.0 miles northwest of Jasper, Texas.

DESCRIPTION: The Sam Rayburn Dam and Reservoir includes a main earthen embankment, two dikes, an uncontrolled broadcrested weir spillway, and a combination hydroelectric powerhouse and gated outlet works.

AUTHORIZATION: River and Harbor Act of 1945 (Existing Project).

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable.

TOTAL BENEFIT-COST RATIO: Not applicable.

INITIAL BENEFIT-COST RATIO: Not applicable.

BASIS OF BENEFIT-COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA

Original Project		
Actual Federal Cost		$ 65,700,000
Non-Federal Cost		3,000,000
Cash Contribution	$ 3,000,000	
Total Original Project Cost		$ 68,700,000

1846

SUMMARIZED FINANCIAL DATA (CONTINUED)			ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Spillway Modification						
Estimated Total Appropriation Requirement		$ 36,914,000		Entire Modification	70	Nov 1996
Future Non-Federal Reimbursement		1,360,000				
Hydropower	$ 960,000					
Cash Contributions	400,000					
Estimated Federal Cost (Ultimate)		$ 35,554,000				
Total Estimated Modification Cost		$ 37,314,000				
Total Estimated Project Cost		$106,014,000				
Allocations to 30 September 1995		$ 27,026,000				
Conference Allowance for FY 1996		9,474,000				
Allocation for FY 1996		8,688,000	1/			
Allocations through FY 1996		35,714,000	97			
Allocations Requested for FY 1997		1,200,000	100			
Programmed Balance to Complete after FY 1997		0				
Unprogrammed Balance to Complete after FY 1997		0				

1/ Reflects $786,000 reduction assigned to savings and slippage.

1847

PHYSICAL DATA

Sam Rayburn Dam and Reservoir was started in September 1956 and deliberate impoundment began in March 1965. The rolled earthfill embankment is approximately 12,400 feet in length, with a crest width of 42 feet, a crest elevation of 190.0 feet National Geodetic Vertical Datum (NGVD), a maximum height of 120 feet, and a volume of about 6,000,000 cubic yards. The combination powerhouse and outlet works is a concrete structure approximately 166 feet wide, 240 feet long, with the lowest portion founded at elevation 30 feet NGVD. The uncontrolled spillway is 2,200 feet wide with a 15-foot wide concrete weir at a crest elevation of 176.0 feet NGVD. The modification of the spillway consists of constructing a new reinforced

concrete weir, stilling basin and outfall channel at or near the existing spillway structure. The proposed weir would have a width of 640 feet, an overall length of 433 feet, an outfall channel approximately 5,000 feet long and a crest elevation of 176.0 feet NGVD.

JUSTIFICATION: The uncontrolled spillway channel at Sam Rayburn Dam is constructed through erodible loose sand, shaley clay, and sandstone. Based on experience of significant erosion at other uncontrolled and unlined spillways constructed through less erodible material, the spillway at Sam Rayburn Dam would experience severe erosion damage and probably breach during passage of floods in excess of the 150-year flood frequency (25 percent of Probable Maximum Flood). Both experience and analysis indicate that a passage of the Probable Maximum Flood (PMF) would cause much more severe and extensive erosion damage to the spillway. This erosion would breach the existing concrete broadcrested control weir and would culminate in an uncontrolled catastrophic release of the reservoir.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Complete Construction of Spillway Modification	$ 1,095,000
Construction Management	50,000
Contingencies	55,000
Total	$ 1,200,000

NON-FEDERAL COSTS: Sam Rayburn Dam Electric Cooperate (SRDEC), city of Lufkin, and Lower Neches Valley Authority (LNVA) have been notified by the Director of Civil Works by letter dated 23 October 1992 that cost sharing will be required of them. Cost sharing for SRDEC, Lufkin and LNVA will be in the amount of $960,000, $100,000 and $300,000 respectively.

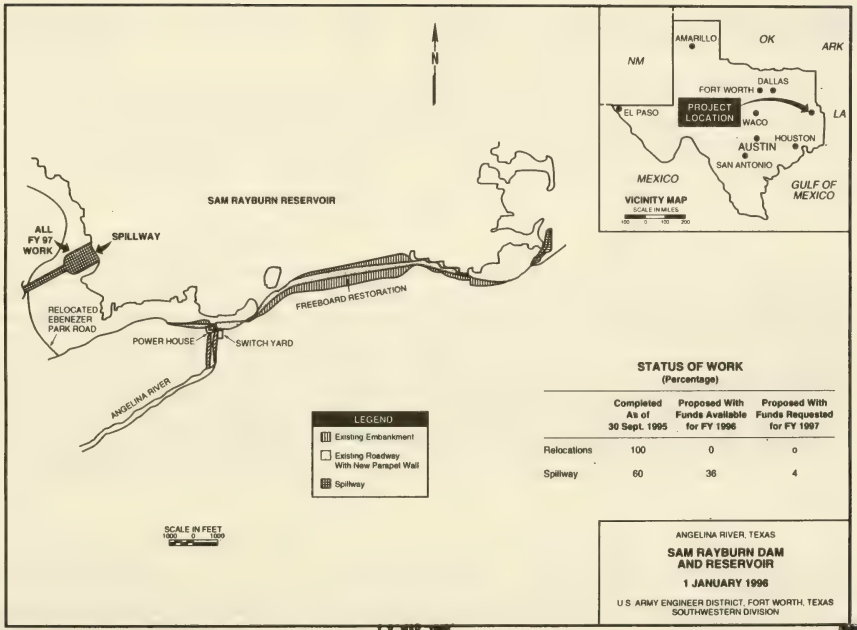
STATUS OF LOCAL COOPERATION: A meeting was held on 13 November 1992 with the three non-Federal interests and representatives from Assistant Secretary of the Army for Civil Works; HQUSACE; Southwestern Division; and Fort Worth District to discuss the cost sharing of the project under the Section 1203(a) Dam Safety provisions of Water Resources Development Act of 1986. Sam Rayburn Dam Electric Cooperative, Lower Neches Valley Authority and the city of Lufkin have signed the Project Cooperation Agreement (PCA) and have final approval from Assistant Secretary of the Army for Civil Works.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $36,914,000 is an increase of $414,000 over the latest estimate ($36,500,000) submitted to Congress (FY 1996). This change includes the following items:

Item		Amount
Contract Modifications	$	414,000
Total	$	414,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: Based upon the initial environmental assessment and the results of coordination, it has been concluded that the proposed action will not have a significant adverse effect on the human environment nor is it environmentally controversial. A Findings of No Significant Impact was signed 12 July 1991. It is recognized that an endangered species, the red cockaded woodpecker, as well as sensitive plants occur in the area. The current project design is the least cost alternative to minimize encroachment in these areas. Despite efforts to confine the spillway in the existing spillway area, the outfall channel will encroach on approximately 36 acres of National Forest Service land with approximately 11 acres requiring clearing. This required revision to the environmental assessment was completed in September 1993. The project has been closely coordinated with the U. S. Fish and Wildlife and the National Forest Service. All National Environmental Policy Act requirements have been adhered to.

OTHER INFORMATION: Funds to initiate the Reevaluation Report were reprogrammed in Fiscal Year 1990 and funds to initiate construction were appropriated in Fiscal Year 1994. The scheduled completion date of November 1996 for programmed work is a slippage from the latest completion date of August 1996 presented to Congress. This change is due to construction delay as a result of weather and subsurface conditions on the discharge chute slopes.



STATUS OF WORK
(Percentage)

	Completed As of 30 Sept. 1995	Proposed With Funds Available for FY 1996	Proposed With Funds Requested for FY 1997
Relocations	100	0	0
Spillway	60	36	4

ANGELINA RIVER, TEXAS

SAM RAYBURN DAM AND RESERVOIR

1 JANUARY 1996

U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS
SOUTHWESTERN DIVISION

APPROPRIATION TITLE: Construction, General - Dam Safety Assurance

PROJECT: Two Rivers Dam, New Mexico - (Dam Safety) (Continuing)

LOCATION: The reservoir is located approximately 14 miles southwest of the city of Roswell, in Chavez County, New Mexico.

DESCRIPTION: The project would widen the existing Rocky Dam left abutment spillway an additional 1,170 feet.

AUTHORIZATION: Flood Control Act of 1954.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable.

TOTAL BENEFIT - COST RATIO: Not applicable.

INITIAL BENEFIT - COST RATIO: Not applicable.

BASIS OF BENEFIT - COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Original Project				Entire Project	0	Being Determined
Actual Federal Cost		$ 4,791,000				
Actual Non Federal Cost		144,000				
Cash Contributions	$ 0					
Other Costs	144,000					
Total Original Project Cost		$ 4,935,000				

PHYSICAL DATA

Diamond A - earthfill	
Crest length	4,918 feet
Crest width	26 feet
Maximum height	98 feet
Rocky - earthfill	
Crest length	2,920 feet
Crest width	20 feet
Maximum height	118 feet

SUMMARIZED FINANCIAL DATA (Continued)

Project Modification			ACCUM. PCT. OF EST FED. COST	
Estimated Federal Cost		$ 3,020,000		
Estimated Non-Federal Cost		10,000		
Cash Contributions	$ 10,000			
Other Costs	0			
Total Estimated Modification Cost		$ 3,030,000		
Allocations to 30 September 1995		4,935,000		
Conference Allowance for FY 1996		0		
Allocation for FY 1996		220,000 1/		1/ Reflect $220,000 reprogrammed into the project.
Allocations through FY 1996		5,155,000	66	
Allocation Requested for FY 1997		250,000	69	
Programmed Balance to Complete after FY 1997		2,550,000		
Unprogrammed Balance to Complete after FY 1997		0		

JUSTIFICATION: Two Rivers Reservoir is presently authorized to be operated for flood and sediment control. Project purposes will not be altered by the recommended project modification. According to the 1990 census 44,260 people live in the vicinity of Roswell, New Mexico. Property in the probable maximum flood plain has an estimated value of $995,411,000. Analysis of the probable maximum flood finds that is will exceed the available capacity of the Two Rivers Reservoir, leading to overtopping and possible breaching of Diamond "A" and/or Rocky Dams if not modified.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Initiate construction	$ 60,000
Complete real estate acquisition	15,000
Complete relocations	25,000
Planning, Engineering and Design	140,000
Construction Management	10,000
Total	$ 250,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	**Payments During Construction**	**Annual Operation Maintenance, Repair, Rehabilitation, and Replacement Costs**
Pay a cash contribution equal to a prorated share of 15 percent of the modification cost in accordance with the cost allocation for construction of the original project.	$ 10,000	
Total Non-Federal Cost	$ 10,000	$ 0 1/

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

1/ The correction will not increase the operation, maintenance and replacement cost.

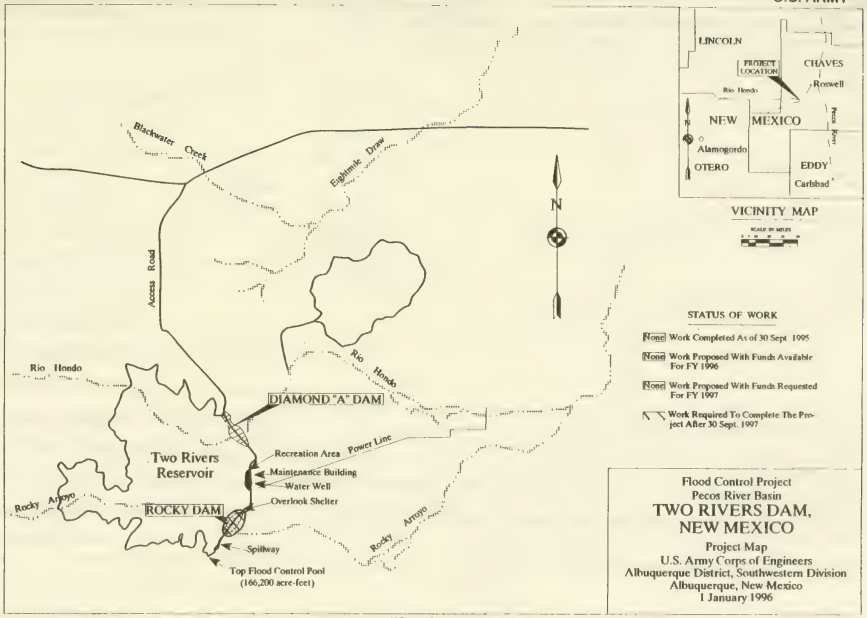
STATUS OF LOCAL COOPERATION: The existing operating project was completed in 1963 and has been maintained by the U.S. Army Corps of Engineers, Albuquerque District. The local sponsor, the Chavez County Flood Commission, strongly supports the construction and has signed a letter of intent dated August 29, 1994. The Project Cooperation Agreement will be executed in February 1997.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $3,020,000 has not been previously presented to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment and a signed Finding of No Significant Impact were filed in February 1995.

OTHER INFORMATION: Funds to initiate design were reprogrammed in Fiscal Year 1996. Fiscal Year 1997 funds will be used to complete plans and specifications and to initiate construction to widen the existing Rocky Dam left abutment spillway an additional 1,170 feet. The completion date for the project is currently being determined.

1854



18 MAR 1996

23-577 96 – 59

1855

APPROPRIATION TITLE: Construction, General - Dam Safety Assurance

PROJECT: Waco Lake, Texas (Dam Safety)

LOCATION: The existing Waco Lake is located on Bosque River, 4.6 miles above its confluence with Brazos River, at city of Waco, McLennan County, Texas.

DESCRIPTION: The Waco Lake includes a main earthen embankment, a gated concrete spillway, and an outlet works.

AUTHORIZATION: Flood Control Act of 3 September 1954 (Existing Project).

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable.

TOTAL BENEFIT-COST RATIO: Not applicable.

INITIAL BENEFIT-COST RATIO: Not applicable.

BASIS OF BENEFIT-COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA

Original Project		
Actual Federal Cost		$ 48,150,000
Non-Federal Cost		2,750,000
Cash Contribution	$ 250,000	
Other	2,500,000	
Total Original Project Cost		$ 50,900,000

SUMMARIZED FINANCIAL DATA (CONTINUED)			ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Spillway Modification						
Estimated Total Appropriation Requirement		$ 10,100,000		Entire Modification	0	Being Determined
Future Non-Federal Cost		300,000				
Cash Contributions	$300,000					
Estimated Federal Cost (Ultimate)		$ 10,100,000				
Total Estimated Modification Cost		$ 10,400,000				
Total Estimated Project Cost		$ 61,300,000				
Allocations to 30 September 1995		200,000				
Conference Allowance for FY 1996		300,000				
Allocation for FY 1996		180,000	1/			
Allocations through FY 1996		380,000	2			
Allocations Requested for FY 1997		300,000				
Programmed Balance to Complete after FY 1997		9,420,000				
Unprogrammed Balance to Complete after FY 1997		0				

1/ Reflects $25,000 reduction assigned to savings and slippage; $95,000 reprogrammed from the Project.

1857

PHYSICAL DATA

Waco Lake was started in June 1958 and deliberate impoundment began in February 1965. The rolled earthfill embankment is approximately 17,381 feet in length, excluding the spillway, with a crown width of 20 feet, a maximum height of 140 feet, top elevation is 510 feet National Geodetic Vertical Datum (NGVD), and a volume of about 16,000,000 cubic yards. The outlet works consists of an approach structure, an upstream gate control tower with a service bridge, a 20-foot diameter conduit, and a stilling basin. The spillway is a gated, ogee weir structure with a 120 foot nonoverflow monolith at each end and a 664-foot wide gated weir section. The weir crest is at elevation 465.0. The gated section has fourteen 40-foot wide by 35-foot high tainter gates each separated by an 8-foot thick pier. The piers also support a 13-foot wide service roadway which is a series of simple spans of concrete slab and triple prestressed concrete girder construction. The gate-controlled ogee weir spillway is 560 feet wide with 14 - 40 feet by 35 feet tainter gates at a crest elevation of 465.0 feet NGVD.

PHYSICAL DATA (continued):

The one gate-controlled conduit outlet works is 20 feet in diameter with three 6 feet 8 inches by 20 feet Broome-type tractor sluice gates and an invert elevation of 400 feet NGVD. The modification consists of raising the dam by 5.1 feet utilizing reinforced earth from the right spillway abutment to the right end of the dam and have a width equal to the crest width. The dam would be raised from the left spillway abutment to the left end of the dam with compacted fill. No major modification to the spillway, spillway service bridge, outlet works tower, and outlet works tower service bridge will be required. However, the spillway service bridge and hoist mechanisms for the tainter gates would also be raised.

JUSTIFICATION: The original hydrologic design criteria used for Waco Dam Spillway design has been revised. Current hydrologic design criteria indicates the spillway and outlet works cannot pass the PMF without overtopping the dam by 1.0 foot, which could lead to failure of the embankment and catastrophic release of the reservoir. Adding required freeboard, Waco Dam is hydrologically deficient by 5.1 feet.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Planning, Engineering and Design	$ 300,000
Total	$ 300,000

NON-FEDERAL COSTS: Brazos River Authority and the city of Waco will cost share in the amount of $260,000 and $40,000 respectively.

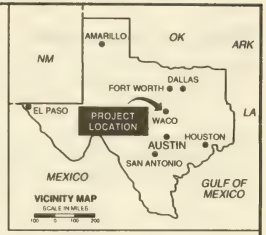
STATUS OF LOCAL COOPERATION: The two project sponsors, Brazos River Authority, and the city of Waco, have been contacted to discuss the cost sharing of the project under the Section 1203(a) Dam Safety provisions of Water Resources Development Act of 1986. Both have informally acknowledged a willingness to share in the project cost.

COMPARISON OF FEDERAL COST ESTIMATES: The Federal cost estimate of $10,100,000 is an increase of $150,000 over the latest estimate ($9,950,000) submitted to Congress (FY 1996). This change includes the following item:

Item	Amount
Price Escalation	$150,000
Total	$150,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment (EA) has been made of the proposed alternatives and a Draft Finding of No Significant Impact (FONSI) has been completed. None of the proposed alternatives would have any significant impact on the human environment if implemented; therefore, no Environmental Impact Statement will be prepared.

OTHER INFORMATION: The design memorandum was initiated in Fiscal Year 1995 through reprogramming actions. Fiscal Year 1997 funds will be used to complete the design memorandum and initiate the plans and specifications.



LEGEND

- LAKE AREA
- EMBANKMENT

STATUS OF WORK
(Percentage)

	Completed As of 30 Sept. 1995	Proposed With Funds Available for FY 1996	Proposed With Funds Requested for FY 1997	Work Required to Complete Project After 1997
Raised Embankment	0	0	0	100

BRAZOS RIVER BASIN, TEXAS

WACO LAKE, TEXAS (DAM SAFETY)

1 JANUARY 1996

U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS
SOUTHWESTERN DIVISION

APPROPRIATION TITLE: Construction, General - Dam Safety

PROJECT: Table Rock Lake, Missouri and Arkansas, (Dam Safety) (Continuing)

LOCATION: Table Rock Dam is located on the White River 528.8 miles above its mouth, in Stone and Taney Counties in southwest Missouri near the city of Branson.

DESCRIPTION: Table Rock Dam can safely pass only 65 percent of the Probable Maximum Flood. Studies indicate that this flood would overtop the dam more than five feet and would breach the earthen embankment portion of the dam, causing catastrophic flood conditions for downstream areas including Branson. The original recommended dam safety project consisted of raising the top of the existing dam by ten feet and providing a traffic detour route during construction for the heavily traveled section of Missouri State Highway 265 that crosses the existing dam. After additional planning and design activities, an auxiliary gated spillway has been proposed in lieu of raising the dam. This proposal would eliminate the need for a temporary road detour, reduce environmental impacts, and reduce the maximum design pool elevation. This gated spillway plan is expected to reduce the original $60,200,000 estimate by several million dollars.

AUTHORIZATION: Flood Control Acts of 1938, 1941 and 1944.

REMAINING BENEFITS-REMAINING COST RATIO: Not applicable.

TOTAL BENEFIT-COST RATIO: Not Applicable.

INITIAL BENEFIT-COST RATIO: Not applicable.

BASIS OF BENEFIT-COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA			STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Original Project			Entire Project	0	Being Determined
Actual Federal Cost		$16,233,000			
Actual Non-Federal Cost		49,867,000			
Cash Contributions	0				
Hydropower Reimbursement	49,867,000				
Total Original Project Cost		66,100,000			

Division: Southwestern **District: Little Rock** **Project: Table Rock Lake, MO & AR (Dam Safety)**

1861

SUMMARIZED FINANCIAL DATA (CONTINUED)

			ACCUM. PCT. OF EST. FED COST
Remedial Work or Project Modification			
Estimated Total Appropriation Requirement		$60,200,000	
Future Non-Federal Reimbursement		6,225,000	
Estimated Federal Cost (Ultimate)		53,975,000	
Estimated Non-Federal Cost		6,225,000	
Reimbursement		6,225,000	
Hydropower	$6,225,000		
Total Estimated Project Cost		$60,200,000	
Allocations to 30 September 1995		$100,000 1/	
Conference Allowance for FY 1996		0	
Allocation for FY 1996		800,000 1/	
Allocations through FY 1996		900,000	2
Allocation Requested for FY 1997		$460,000	3
Programmed Balance to Complete After FY 1997		58,840,000	
Unprogrammed Balance to Complete After FY 1997		0	

1/ Allocations thru FY 1996 are to be provided by reprogramming.

PHYSICAL DATA: The dam, which was started in October 1952 and completed in November 1958, consists of a 1,602 foot concrete gravity section and two earth fill embankment structures with a length of 4,821 feet. Total length of the dam is 6,423 feet rising to a maximum height of 252 feet above the streambed. The structure has four 4 foot by 9 foot sluices. The gated emergency spillway consists of ten bays, each 45 feet wide, controlled by 37-foot high tainter gates. The dam contains four 50,000-kw power units, each supplied by an 18-foot diameter penstock. Storage is provided in the reservoir for water supply, flood control, and generation of hydroelectric power. The original plan of improvement was to raise the top of the existing dam by ten feet. The current plan is to provide an auxiliary gated spillway in place of part of the existing earthen embankment on the left side, looking downstream. Design is underway to determine the number and size of the gates.

JUSTIFICATION: The Program Evaluation Report of December 1994 found that the existing spillway would not safely pass the probable maximum flood without overtopping the dam; therefore, structural modifications to increase the reservoir capacity are recommended. It has been determined that this flood would overtop the dam by more than five feet and that failure of the earthen portion of the dam would likely occur.

A Table Rock Dam failure would cause about $363 million of downstream damages. Damages would consist of $171 million to commercial and residential structures, $44.4 million to recreation facilities, $46 million to roads and bridges, $95 million to hydropower facilities at Table Rock and Bull Shoals projects and $6.3 million to the Shepherd of the Hills Fish Hatchery. In addition, Table Rock Lake Project is estimated to generate $106 million annually from project purposes of flood control, recreation, and hydropower. These benefits would be lost if the dam were to fail. A failure of the dam could put 12,400 people at risk to injury and death with major damages to the city of Branson, Missouri.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Planning, Engineering and Design	$460,000
Total	$460,000

NON-FEDERAL COST: The non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and and Replacement Costs
Pay all costs allocated to hydropower and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of hydropower facilities.	$6,225,000	$0
Total Non-Federal Costs	$6,225,000	$0

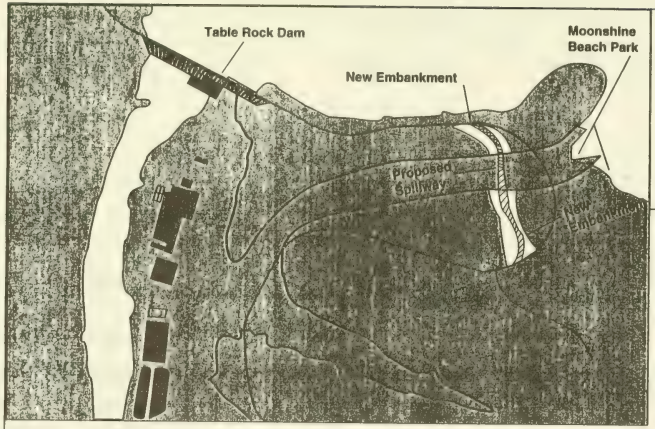
STATUS OF LOCAL COOPERATION: The Southwestern Power Administration has been contacted and understands the requirement for reimbursement of costs allocated to power.

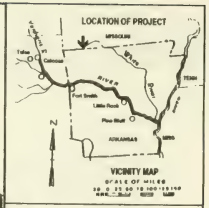
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $60,200,000 is the initial estimate to be submitted to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A draft Environmental Assessment has been prepared and included in the Program Evaluation Report. The Feature Design Memorandum will include a determination on the need for an Environmental Impact Statement.

OTHER INFORMATION: The initial Planning and Engineering was accomplished using Operation and Maintenance, General funds. During early preparation of the Program Evaluation Report, it appeared that the project cost for the dam raising scheme could be reduced by about $10 million if a segment of the Ozark Mountain Highroad, a Branson bypass, could be constructed by the state of Missouri downstream of Table Rock Dam prior to construction of the dam safety project. Little Rock District coordinated with the Missouri Highway and Transportation Department (MHTD) regarding the construction schedule of the Highroad. Subsequently, the MHTD indicated that the construction of the bypass is severely constrained by funding, and that the required section is not currently scheduled for construction. As a direct result, this option was dropped from further consideration. When it became apparent that the cost of the dam raising project could not be reduced, another alternative was investigated. This scheme includes building an auxiliary gated spillway in place of part of the left earthen embankment. This method could eliminate many of the objections of the dam raising scheme and could reduce the original $60,200,000 estimate by several million dollars. The new cost estimate will be developed within the next year.

1864





Work proposed with funds available for FY 1996

Work proposed with funds available for FY 1997

Work required to complete the project after 30 Sep 1997

WHITE RIVER BASIN
TABLE ROCK LAKE
MISSOURI AND ARKANSAS
(DAM SAFETY)

U.S. ARMY ENGINEER DISTRICT LITTLE ROCK
U.S. ARMY ENGINEER DIVISION, SOUTHWESTERN

1 JANUARY 1996

APPROPRIATION TITLE: Construction, General - Dam Safety Assurance

PROJECT: Tenkiller Ferry Lake, Oklahoma (Dam Safety) (Continuing)

LOCATION: The project is located on the Illinois River about 7 miles northeast of Gore and about 22 miles southeast of Muskogee, Oklahoma.

DESCRIPTION: The study area consists of the reservoir area above Tenkiller Ferry Dam up to the maximum pool caused by PMF inflow, the Illinois River floodplain from Tenkiller Ferry Dam to the Arkansas River, and the Arkansas River flood plain from Webbers Falls Lock and Dam to a point just below Fort Smith and Van Buren, Arkansas, including R. S. Kerr and W. D. Mayo reservoirs and navigation structures.

AUTHORIZATION: Flood Control Act of 1938.

BENEFIT-COST RATIO: Not applicable.

TOTAL BENEFIT-COST RATIO: Not applicable.

INITIAL BENEFIT-COST RATIO: Not applicable.

BASIS OF BENEFIT-COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Original Project				Entire Project	0	Being Determined
Actual Federal Cost		$ 24,057,718				
Actual Non-Federal Cost			0			
Cash Contributions	$ 0					
Other Costs	0					
Total Original Project Cost		$ 24,057,718				

SUMMARIZED FINANCIAL DATA (Continued):

			ACCUM. PCT. OF EST FED. COST
Project Modification			
Estimated Federal Cost		$ 32,800,000	
Estimated Non-Federal Cost		0	
Cash Contribution	$ 0		
Other Costs	0		
Total Estimated Modification Cost		$ 32,800,000	
Total Estimated Project Cost		$ 56,857,718	
Allocations to 30 September 1995		870,000	
Conference Allowance for FY 1996		530,000	
Allocation for FY 1996		486,000 1/	
Allocations through FY 1996		1,356,000	4
Allocation Requested for FY 1997		690,000	6
Scheduled Balance to Complete after FY 1997		30,754,000	
Unscheduled Balance to Complete after FY 1997		0	

1/ Reflects $44,000 reduction assigned as savings and slippage.

PHYSICAL DATA: Construction began in June 1947. Embankment closure was completed in May 1952. The dam consists of an earthfill embankment approximately 3,000 feet in length, an earthfill dike about 1,350 feet in length and with a gated concrete gravity spillway located on the right abutment. Ten tainter gates 50 feet wide by 24 feet high regulate lake releases through the spillway. The low flow control outlet is a 19-foot diameter conduit with two service gates. The top of dam is at elevation 677.2.

An auxiliary spillway with five 50 feet wide by 35 feet high tainter gates would be constructed near the right abutment of the embankment. This spillway structure would be designed similar to the existing spillway.

JUSTIFICATION: The spillway is inadequate to pass the probable maximum flood, and if it occurred, the embankment would be overtopped for a duration of 30 hours and a peak elevation of approximately 683.5 feet. The existing spillway would pass about 85% of the probable maximum flood with no freeboard. If the probable maximum flood occurred and overtopping caused dam failure, severe economic damage would be incurred downstream. The town of Gore is located about 7 miles downstream from the dam; however, the risk of loss of life would not be high as the town would be inundated by flood releases prior to dam failure because of the small downstream channel capacity.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Planning, Engineering and Design	$ 690,000
Total	$ 690,000

NON-FEDERAL COST: Not applicable.

STATUS OF LOCAL COOPERATION: Not applicable.

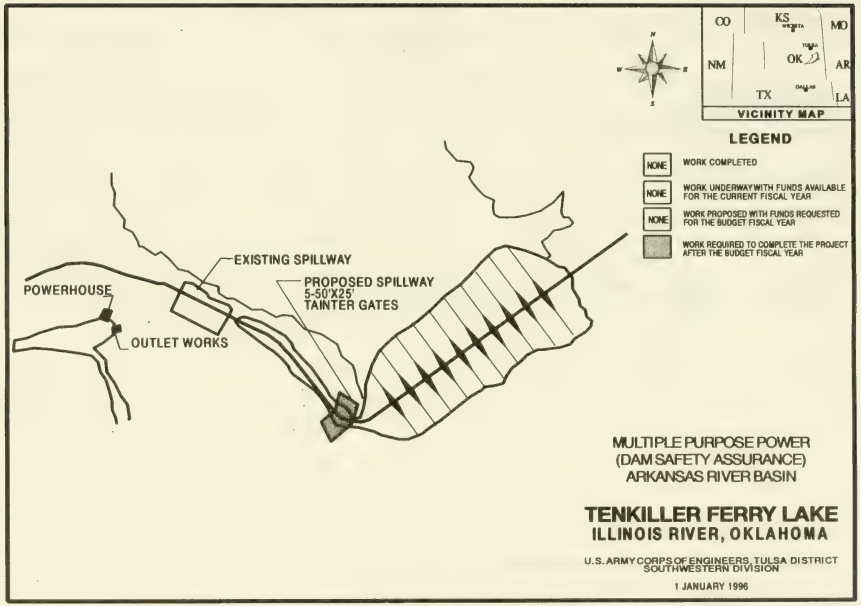
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $32,800,000 is an increase of $1,000,000 from the latest estimate ($31,800,000) presented to Congress (FY 1996). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	(+)$1,000,000
Total	$1,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: Not required.

The provisions of Section 404 of the Clean Water Act do not apply because the project improvements do not involve the placement of fill material or the discharge of dredge material in the waters of the United States.

OTHER INFORMATION: A feature design memorandum was completed in September 1995. Plans and specifications will be initiated in Fiscal Year 1996 and are scheduled to complete in the fourth quarter of Fiscal Year 1997.


CO
KS
MO
NM
OK
AR
TX
LA
VICINITY MAP
LEGEND
NONE
WORK COMPLETED
NONE
WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR
NONE
WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR
WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR
EXISTING SPILLWAY
PROPOSED SPILLWAY
5-50'X25'
TAINTER GATES
POWERHOUSE
OUTLET WORKS
MULTIPLE PURPOSE POWER
(DAM SAFETY ASSURANCE)
ARKANSAS RIVER BASIN
TENKILLER FERRY LAKE
ILLINOIS RIVER, OKLAHOMA
U.S. ARMY CORPS OF ENGINEERS, TULSA DISTRICT
SOUTHWESTERN DIVISION
1 JANUARY 1996

18 MAR 1996

APPROPRIATION TITLE: Construction, General - Major Rehabilitation, Multiple Purpose (Including Power)

PROJECT: Dardanelle Lock and Dam, (Powerhouse) Arkansas (Major Rehabilitation) (Continuing)

LOCATION: Dardanelle Powerhouse is located at Dardanelle Lock & Dam on the Arkansas River in Yell County, Arkansas.

DESCRIPTION: Replace and uprate the four turbines and generators at the Dardanelle Powerhouse. The project is part of the McClellan-Kerr Arkansas River Navigation System.

AUTHORIZATION: River and Harbor Act of 1946.

REMAINING BENEFITS-REMAINING COST RATIO: 1.5 to 1 at 8 3/4 percent.

TOTAL BENEFIT-COST RATIO: 1.5 to 1 at 8 3/4 percent.

INITIAL BENEFIT-COST RATIO: 4.3 to 1 at 8 3/4 percent (FY 1993).

BASIS OF BENEFIT-COST RATIO: Benefits are from the revised draft Feature Design Memorandum, dated March 1993 at 1992 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED COST	STATUS (1 Jan 1996)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Total Appropriation Requirement		$29,700,000		Entire Project	8	Being Determined
Future Non-Federal Reimbursement		29,700,000				
Estimated Federal Cost (Ultimate)		0				
Estimated Non-Federal Cost		29,700,000		PHYSICAL DATA		
Cash Contributions	0					
Other Costs	0					
Reimbursements	$29,700,000					
Hydropower $29,700,000						
Total Estimated Project Cost		$29,700,000				

Replace existing four turbines with new turbines. Rewind the generators. This will result in a 19MW increase in rated total capacity from 142MW to 161MW.

Division: Southwestern **District: Little Rock** **Project: Dardanelle Lock and Dam, (Powerhouse) Arkansas (Major Rehab)**

SUMMARIZED FINANCIAL DATA (CONTINUED)		ACCUM. PCT. OF EST. FED COST	
Allocations to 30 September 1995	$2,463,000		
Conference Allowance for 1996	3,500,000		
Allocation for FY 1996	2,203,000 1/		1/ Reflects $290,000 reduction assigned as savings and slippage and $1,007,000 reprogrammed from the project.
Allocation through FY 1996	4,666,000	16	
Allocation Requested for FY 1997	6,000,000	36	
Programmed Balance to Complete after FY 1997	19,034,000		
Unprogrammed Balance to Complete after FY 1997	0		

JUSTIFICATION: Dardanelle powerhouse units are rapidly approaching failure and have exhibited reliability problems. Extensive repairs and/or replacement are required to maintain hydropower production. Uprating units with the replacements will allow for more efficient generation of power, increased benefits, and extend the useful life of this feature. This project will remove the existing four turbines and replace them with "state of the art" turbines and rewind the generators. This will increase power capacity at Dardanelle by 19MW (from 35.5MW each unit to 40.25MW each unit). Dardanelle Lake has two feet of peaking storage (65,000 acre-feet) for power. Average annual benefits are $4,780,000, all hydropower, based on 1992 price levels.

FISCAL YEAR 1997: The requested amount will be applied as follows:

Continue Construction of Turbines and Generators	$5,340,000
Planning, Engineering, and Design	180,000
Construction Management	480,000
Total	$6,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Flood Control Act of 1944, the non-Federal sponsor must comply with the requirements listed on the next page.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Pay all costs allocated to hydropower and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of hydropower facilities.	$29,700,000	0
Cash Contribution	(0)	
Reimbursement	(29,700,000)	
Total Non-Federal Costs	$29,700,000	0

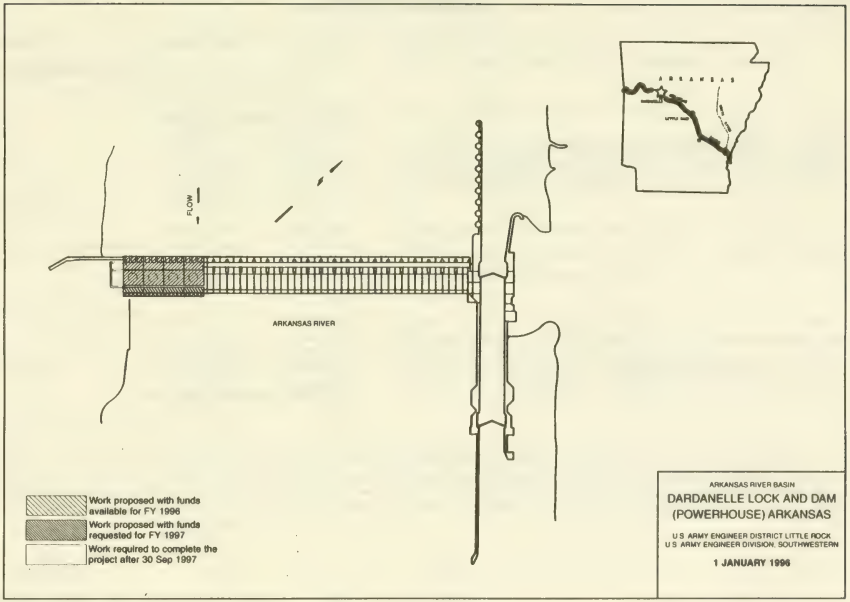
The non-Federal sponsor will reimburse its share of construction costs over a period not to exceed 50 years following completion of construction.

STATUS OF LOCAL COOPERATION: This project is to be 100 percent Federally funded with payback from the Southwestern Power Administration's sale of power. Reimbursement payments will be initiated at the completion of construction.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $29,700,000 is the same as last submitted to Congress (FY 1996).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An environmental review of the project was completed in January 1991. It was determined that no Environmental Impact Statement or Finding of No Significant Impact was needed.

OTHER INFORMATION: Planning, engineering, and design performed in FY 1992 was accomplished with Operation and Maintenance, General funds. Funds to initiate construction were appropriated in FY 1993. The construction contract was awarded substantially less than estimated. The $9,189,000 contingency remains in the estimate as unprogrammed balance to complete after FY 1996. It is prudent to keep this large contingency, because the extent of damage to the hydropower generating facilities will not be known until the contractor dismantles the units. If internal damage is minor, then contingencies will be reduced.


FLOW
ARKANSAS RIVER
ARKANSAS
Work proposed with funds available for FY 1996
Work proposed with funds requested for FY 1997
Work required to complete the project after 30 Sep 1997
ARKANSAS RIVER BASIN
DARDANELLE LOCK AND DAM
(POWERHOUSE) ARKANSAS
U S ARMY ENGINEER DISTRICT LITTLE ROCK
U S ARMY ENGINEER DIVISION, SOUTHWESTERN
1 JANUARY 1996

18 MAR 1996

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

1. Navigation

a. Channels and Harbors.

The budget estimate of $55,322,000 provides for essential operation and maintenance work on the 17 channel and harbor projects named in the list which follows. The work to be accomplished under this activity consists of operating and maintaining the coastal navigation channels, harbors and anchorages by means of dredging, constructing bulkheads and spoil disposal areas, snagging, and repairing channel stabilization works, navigation structures, and harbor jetties, all as authorized in the laws pertaining to river and harbor projects.

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	 FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Texas			
Bayport Ship Channel	2,060,000	1,160,000	
	(0)	(0)	1. None.
	(2,060,000)	(1,160,000)	2. Dredge navigation channel in FY 97.
Brazos Island Harbor	940,000	3,328,000	
	(50,000)	(0)	1. Performed Section 933 study in FY 96.
	(890,000)	(3,328,000)	2. Dredge navigation channel in FY 97.
Cedar Bayou	777,000	600,000	
	(0)	(0)	1. None.
	(777,000)	(600,000)	2. Dredge navigation channel in FY 97.
Channel to Port Mansfield	3,400,000	160,000	
	(0)	(160,000)	1. Manage archeological/cultural resources in FY 97.
	(3,400,000)	(0)	2. None.

1874

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

1. Navigation (Continued)

a. Channels and Harbors. (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Texas (Continued)			
Corpus Christi Ship Channel	1,620,000	4,360,000	
	(0)	(150,000)	1. Initiate Dredged Material Maintenance Plan studies in FY 97.
	(1,620,000)	(4,210,000)	2. Dredge navigation channel in FY 97.
Double Bayou	0	510,000	
	(0)	(0)	1. None.
	(0)	(510,000)	2. Dredge navigation channel in FY 97.
Freeport Harbor	3,200,000	3,140,000	
	(0)	(20,000)	1. Initiate Dredged Material Maintenance Plan studies in FY 97.
	(3,200,000)	(3,120,000)	2. Dredge navigation channel in FY 97.
Galveston Harbor and Channel	220,000	3,693,000	
	(0)	(103,000)	1. Monitor sea turtles in FY 97.
	(220,000)	(3,590,000)	2. Dredge navigation channel in FY 97.
GIWW - Channel to Victoria	640,000	620,000	
	(440,000)	(420,000)	1. None.
	(200,000)	(200,000)	2. None.
GIWW - Chocolate Bayou	140,000	300,000	
	(140,000)	(300,000)	1. Initiate Dredged Material Maintenance Plan studies in FY 97.
	(0)	(0)	2. None.
Gulf Intracoastal Waterway	12,894,000	19,138,000	

1875

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

1. Navigation (Continued)

a. Channels and Harbors. (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Texas (Continued)			
	(4,089,000)	(4,731,000)	1. Perform data collection and monitor Laguna Madre in FY 97.
	(8,805,000)	(14,407,000)	2. Dredge various reaches of navigation channel in FY 97.
Houston Ship Channel	4,370,000	4,323,000	
	(390,000)	(365,000)	1. None.
	(3,980,000)	(3,958,000)	2. Dredge navigation channel and dewater disposal area in FY 97.
Matagorda Ship Channel	3,235,000	1,490,000	
	(140,000)	(0)	1. Completed project condition surveys in FY 96.
	(3,095,000)	(1,490,000)	2. Dredge navigation channel in FY 97.
Mouth of Colorado River	1,710,000	1,165,000	
	(0)	(0)	1. None.
	(1,710,000)	(1,165,000)	2. Dredge navigation channel in FY 97.
Sabine-Neches Waterway	13,308,000	10,050,000	
	(790,000)	(548,000)	1. Performed cultural resource activities in FY 96.
	(12,518,000)	(9,502,000)	2. Dredge navigation channel in FY 97.
Texas City Ship Channel	1,965,000	1,250,000	
	(0)	(0)	1. None.
	(1,965,000)	(1,250,000)	2. Dredge navigation channel in FY 97.
Trinity River and Tributaries	1,115,000	35,000	
	(0)	(0)	1. None.

1876

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

1. Navigation (Continued)

a. Channels and Harbors. (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Texas (Continued)			
	(1,115,000)	(35,000)	2. None.
Other Projects Maintained Periodically	580,000	0	
	(0)	(0)	1. None.
	(580,000)	(0)	2. None.
Total Channels and Harbors	52,174,000	55,322,000	
	(6,039,000)	(6,797,000)	
	(46,135,000)	(48,525,000)	

1877

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

1. Navigation (Continued)

b. Locks and Dams.

The budget estimate of $24,155,000 provides for operation and essential repairs on one system containing 13 locks and dams. Included are: labor, supplies, materials and parts for day-to-day functioning; and periodic dredging, maintenance, repairs, or replacements of channels and structures. The requested amount also includes the application of special recreation use fees for recreation areas.

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Arkansas and Oklahoma			
McClellan-Kerr Arkansas River Navigation System	23,027,000 (12,661,000) (10,366,000)	24,155,000 (12,428,000) (11,727,000)	1. None. 2. Dredge navigation channel; continue Phase II tow haulage equipment installation; paint tainter gates Dam 4; stabilize bank NM 0.0 to 9.0; initiate Phase III tow haulage installation if approved.
Total - Locks and Dams	23,027,000 (12,661,000) (10,366,000)	24,155,000 (12,428,000) (11,727,000)	
TOTAL - NAVIGATION	75,201,000 (18,700,000) (56,501,000)	79,477,000 (19,225,000) (60,252,000)	

1878

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

2. Flood Control

a. Reservoirs.

The budget estimate of $85,596,000 provides for the operation and ordinary maintenance of the 71 projects named in the list which follows, and the scheduling of reservoir flood control operations in the Southwestern Division. Included are: labor, supplies, materials and parts for day-to-day functioning. The requested amount also includes the application of special recreation use fees for recreation areas.

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Arkansas			
Blue Mountain Lake	1,064,000	1,088,000	
	(680,000)	(693,000)	1. None.
	(384,000)	(395,000)	2. None.
DeQueen Lake	1,194,000	1,051,000	
	(532,000)	(558,000)	1. None.
	(662,000)	(493,000)	2. None.
Dierks Lake	1,006,000	1,034,000	
	(544,000)	(575,000)	1. None.
	(462,000)	(459,000)	2. None.
Gillham Lake	1,000,000	995,000	
	(618,000)	(622,000)	1. None.
	(382,000)	(373,000)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

2. Flood Control (Continued)

a. Reservoirs. (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Arkansas (Continued)			
Millwood Lake	1,826,000 (1,061,000) (765,000)	1,743,000 (1,041,000) (702,000)	1. None. 2. None.
Nimrod Lake	1,338,000 (817,000) (521,000)	1,295,000 (839,000) (456,000)	1. None. 2. None.
Colorado			
John Martin Reservoir	1,558,000 (1,057,000) (501,000)	1,415,000 (1,164,000) (251,000)	1. Perform additional operational and Natural Resource activities in FY 97. 2. None.
Trinidad Lake	578,000 (470,000) (108,000)	632,000 (584,000) (48,000)	1. Perform Periodic Inspection and increase operational activities in FY 97. 2. None.

1880

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

2. Flood Control (Continued)

a. Reservoirs. (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Kansas			
Council Grove Lake	1,060,000	1,032,000	
	(580,000)	(525,000)	1. None.
	(480,000)	(507,000)	2. None.
El Dorado Lake	531,000	489,000	
	(361,000)	(335,000)	1. None.
	(170,000)	(154,000)	2. None.
Elk City Lake	780,000	723,000	
	(555,000)	(503,000)	1. None.
	(225,000)	(220,000)	2. None.
Fall River Lake	786,000	737,000	
	(585,000)	(603,000)	1. None.
	(201,000)	(134,000)	2. None.
John Redmond Dam and Reservoir	1,817,000	4,054,000	
	(836,000)	(727,000)	1. Cleaned, replaced, and evaluated embankment relief wells, piezometers and toe drains in FY 96.
	(981,000)	(3,327,000)	2. Repair Hartford levee under-seepage in FY 97.

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

2. Flood Control (Continued)

a. Reservoirs. (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Kansas (Continued)			
Marion Lake	2,276,000	1,038,000	
	(728,000)	(644,000)	1. Decrease operational activities in FY 97 due to organizational changes.
	(1,548,000)	(394,000)	2. None.
Pearson-Skubitz Big Hill Lake	904,000	798,000	
	(604,000)	(544,000)	1. None.
	(300,000)	(254,000)	2. None.
Toronto Lake	323,000	357,000	
	(281,000)	(311,000)	1. Increase operations activities associated with Natural Resource program.
	(42,000)	(46,000)	2. None.
Missouri			
Clearwater Lake	1,996,000	2,025,000	
	(1,251,000)	(1,175,000)	1. None.
	(745,000)	(850,000)	2. None.

1882

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

2. Flood Control (Continued.)

a. Reservoirs. (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
New Mexico			
Abiquiu Dam	1,323,000	1,340,000	
	(1,024,000)	(1,080,000)	1. None.
	(299,000)	(260,000)	2. None.
Cochiti Lake	1,732,000	1,987,000	
	(1,402,000)	(1,524,000)	1. None.
	(330,000)	(463,000)	2. None.
Conchas Lake	1,125,000	1,105,000	
	(1,010,000)	(986,000)	1. None.
	(115,000)	(119,000)	2. None.
Galisteo Dam	245,000	356,000	
	(242,000)	(351,000)	1. Perform Periodic Inspection and additional operational activities in FY 97.
	(3,000)	(5,000)	2. None.
Jemez Canyon Dam	398,000	425,000	
	(388,000)	(416,000)	1. None.
	(10,000)	(9,000)	2. None.

1883

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

2. Flood Control (Continued)

a. Reservoirs. (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
New Mexico (Continued)			
Santa Rosa Dam & Lake	1,005,000	966,000	
	(874,000)	(893,000)	1. None.
	(131,000)	(73,000)	2. None.
Two Rivers Dam	352,000	455,000	
	(319,000)	(301,000)	1. None.
	(33,000)	(154,000)	2. None.
Oklahoma			
Arcadia Lake	308,000	295,000	
	(274,000)	(250,000)	1. None.
	(34,000)	(45,000)	2. None.
Birch Lake	778,000	812,000	
	(513,000)	(542,000)	1. None.
	(265,000)	(270,000)	2. None.
Candy Lake	42,000	39,000	
	(42,000)	(39,000)	1. None.
	(0)	(0)	2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

2. Flood Control (Continued)

a. Reservoirs. (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Oklahoma (Continued)			
Canton Lake	1,922,000 (1,038,000) (884,000)	1,848,000 (1,084,000) (764,000)	1. None. 2. None.
Copan Lake	871,000 (558,000) (313,000)	916,000 (578,000) (338,000)	1. None. 2. None.
Fort Supply Lake	863,000 (580,000) (283,000)	802,000 (525,000) (277,000)	1. None. 2. None.
Great Salt Plains Lake	353,000 (304,000) (49,000)	330,000 (277,000) (53,000)	1. None. 2. None.
Heyburn Lake	769,000 (477,000) (292,000)	764,000 (553,000) (211,000)	1. Transfer operations of State Park to Corps in FY 97. 2. None.
Hugo Lake	1,572,000 (975,000) (597,000)	1,619,000 (981,000) (638,000)	1. None. 2. None.
Hulah Lake	418,000	424,000	

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

2. Flood Control (Continued)

a. Reservoirs. (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Oklahoma (Continued)			
	(351,000) (67,000)	(361,000) (63,000)	1. None. 2. None.
Kaw Lake	1,671,000 (1,253,000) (418,000)	1,781,000 (1,251,000) (530,000)	1. None. 2. None.
Oologah Lake	1,389,000 (889,000) (500,000)	1,326,000 (962,000) (364,000)	1. None. 2. None.
Optima Lake	522,000 (344,000) (178,000)	247,000 (186,000) (61,000)	1. Decrease in operational and administrative activities in FY 97 due to consolidated operations. 2. None.
Pensacola Reservoir - Lake O' the Cherokees	18,000 (18,000) (0)	10,000 (10,000) (0)	1. Decrease operational and administrative activities in FY 97. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

2. Flood Control (Continued)

a. Reservoirs. (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Oklahoma (Continued)			
Pine Creek Lake	1,152,000 (714,000) (438,000)	1,182,000 (739,000) (443,000)	1. None. 2. None.
Sardis Lake	862,000 (629,000) (233,000)	932,000 (657,000) (275,000)	1. None. 2. None.
Skiatook Lake	1,827,000 (566,000) (1,261,000)	922,000 (688,000) (234,000)	1. Increase operational activities of added recreation facilities in FY 97. 2. None.
Waurika Lake	1,866,000 (704,000) (1,162,000)	1,521,000 (777,000) (744,000)	1. Increase operational activities associated with Natural Resource program. 2. None.
Wister Lake	887,000 (639,000) (248,000)	856,000 (660,000) (196,000)	1. None. 2. None.

23-577 96 - 60

1887

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

2. Flood Control (Continued)

a. Reservoirs. (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Texas			
Aquilla Lake	613,000	627,000	
	(484,000)	(472,000)	1. None.
	(129,000)	(155,000)	2. None.
Arkansas-Red River Basins Chloride Control (Area VIII)	1,118,000	1,162,000	
	(671,000)	(694,000)	1. None.
	(447,000)	(468,000)	2. None.
Bardwell Lake	1,167,000	1,344,000	
	(922,000)	(980,000)	1. None.
	(245,000)	(364,000)	2. None.
Belton Lake	2,157,000	2,325,000	
	(1,729,000)	(1,761,000)	1. None.
	(428,000)	(564,000)	2. None.
Benbrook Lake	1,528,000	1,572,000	
	(1,158,000)	(1,196,000)	1. None.
	(370,000)	(376,000)	2. None.

1888

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

2. Flood Control (Continued)

a. Reservoirs. (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Texas (Continued)			
Buffalo Bayou and Tributaries	3,820,000	3,413,000	
	(1,630,000)	(1,863,000)	1. Conduct periodic inspection and increase data collection in FY 97.
	(2,190,000)	(1,550,000)	2. None.
Canyon Lake	1,969,000	2,001,000	
	(1,122,000)	(1,449,000)	1. Increase funding for required management of recreation facilities.
	(847,000)	(552,000)	2. None.
Cooper Lake and Channels	865,000	951,000	
	(805,000)	(864,000)	1. None.
	(60,000)	(87,000)	2. None.
Estelline Springs Experimental Project	12,000	12,000	
	(12,000)	(12,000)	1. None.
	(0)	(0)	2. None.
Ferrell's Bridge Dam - Lake O' the Pines	2,066,000	2,182,000	
	(1,448,000)	(1,548,000)	1. None.
	(618,000)	(634,000)	2. None.

1889

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

2. Flood Control (Continued)

a. Reservoirs. (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Texas (Continued)			
Granger Dam and Lake	1,391,000	1,416,000	
	(1,137,000)	(1,078,000)	1. None.
	(254,000)	(338,000)	2. None.
Grapevine Lake	1,888,000	1,968,000	
	(1,486,000)	(1,477,000)	1. None.
	(402,000)	(491,000)	2. None.
Hords Creek Lake	980,000	1,004,000	
	(730,000)	(714,000)	1. None.
	(250,000)	(290,000)	2. None.
Joe Pool Lake	794,000	774,000	
	(590,000)	(581,000)	1. None.
	(204,000)	(193,000)	2. None.
Lake Kemp	209,000	235,000	
	(182,000)	(185,000)	1. None.
	(27,000)	(50,000)	2. None.
Lavon Lake	2,198,000	2,180,000	
	(1,678,000)	(1,696,000)	1. None.
	(520,000)	(484,000)	2. None.
Lewisville Dam	3,961,000	2,589,000	

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

2. Flood Control (Continued)

a. Reservoirs. (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Texas (Continued)			
	(1,859,000)	(1,846,000)	1. None.
	(2,102,000)	(743,000)	2. None.
Navarro Mills Lake	1,340,000	1,380,000	
	(957,000)	(1,003,000)	1. None.
	(383,000)	(377,000)	2. None.
North San Gabriel Dam and Lake Georgetown	1,446,000	1,539,000	
	(1,106,000)	(1,133,000)	1. None.
	(340,000)	(406,000)	2. None.
O. C. Fisher Dam and Lake	1,069,000	792,000	
	(835,000)	(605,000)	1. Management of recreation facilities assumed by Texas in FY 97.
	(234,000)	(187,000)	2. None.
Pat Mayse Lake	839,000	796,000	
	(583,000)	(566,000)	1. None.
	(256,000)	(230,000)	2. None.

1891

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

2. Flood Control (Continued)

a. Reservoirs. (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Texas (Continued)			
Proctor Lake	1,482,000 (1,085,000) (397,000)	1,543,000 (1,120,000) (423,000)	1. None. 2. None.
Ray Roberts Lake	792,000 (656,000) (136,000)	711,000 (612,000) (99,000)	1. None. 2. None.
Somerville Lake	2,210,000 (1,529,000) (681,000)	2,385,000 (1,537,000) (848,000)	1. None. 2. None.
Stillhouse Hollow Dam	1,458,000 (1,240,000) (218,000)	1,567,000 (1,234,000) (333,000)	1. None. 2. None.
Waco Lake	1,961,000 (1,531,000) (430,000)	1,901,000 (1,417,000) (484,000)	1. None. 2. None.

1892

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

2. Flood Control (Continued)

a. Reservoirs. (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	 FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Texas (Continued)			
Wallisville Lake	450,000	449,000	
	(20,000)	(411,000)	1. Restructuring of category of work feature/subfeature from maintenance to operations.
	(430,000)	(38,000)	2. None.
Wright Patman Dam and Lake	2,209,000	2,295,000	
	(1,629,000)	(1,742,000)	1. None.
	(580,000)	(553,000)	2. None.

1893

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

2. Flood Control (Continued)

a. Reservoirs. (Continued)

Scheduling Reservoir Operations. The budget estimate of $717,000 provides for preparation, review and updating of water control manuals, real-time data collection to monitor hydrologic conditions at 100 Corps reservoirs, locks and dams and multiple purpose power projects; and for the issuance of gate regulation instructions as necessary at 19 additional non-Corps dam and reservoir projects at which the Corps is responsible for flood control or navigation.

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	 FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Scheduling Reservoir Operations (All operations accounts)			
Arkansas	(0)	(0)	
Colorado	(36,000)	(44,000)	
Kansas	(41,000)	(56,000)	
Missouri	(0)	(0)	
New Mexico	(54,000)	(66,000)	
Oklahoma	(349,000)	(474,000)	
Texas	(70,000)	(77,000)	
Total Operations	(550,000)	(717,000)	1. Replace water control data stations and realign funds to reflect realistic needs in FY 97.
	(0)	(0)	2. None.
Total - Reservoirs	86,849,000	85,596,000	
	(57,051,000)	(58,627,000)	
	(29,798,000)	(26,969,000)	

1894

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

2. Flood Control (Continued)

b. Channel improvement, inspection, and miscellaneous maintenance.

Inspection of Completed Works. The budget estimate of $988,000 provides for inspection at flood control projects constructed by the Corps and operated and maintained by non-Federal interests. The inspections are conducted to determine the extent of compliance with legal standards and to advise local interests, as necessary, of corrective measures required to ensure that project structures and facilities will continue to safely provide flood protection benefits. These projects consist of features such as channels, levees, floodwalls, drainage structures and pumping plants.

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	 FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 95 to FY 65 (10%+/-). 2. Major Maintenance Items Budgeted in FY 96 (Threshold $500,000).
Inspection of Completed Works	(All Operations Accounts)		
Arkansas	(94,000)	(96,000)	
Colorado	(0)	(28,000)	
Kansas	(62,000)	(78,000)	
Missouri	(3,000)	(3,000)	
New Mexico	(107,000)	(109,000)	
Oklahoma	(67,000)	(84,000)	
Texas	(262,000)	(590,000)	
Totals Operations	(595,000)	(988,000)	1. Increase number of inspections in FY 97.
	(0)	(0)	2. None.

1895

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

2. Flood Control (Continued)

b. Channel improvement, inspection, and miscellaneous maintenance. (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 95 to FY 65 (10%+/-). 2. Major Maintenance Items Budgeted in FY 96 (Threshold $500,000).
Total Channel Improvements, Inspections, and Miscellaneous Maintenance	595,000 (595,000) (0)	988,000 (988,000) (0)	
TOTAL - FLOOD CONTROL	87,444,000 (57,646,000) (29,798,000)	86,584,000 (59,615,000) (26,969,000)	

1896

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

3. Multiple Purpose Power Projects

The budget estimate of $67,089,000 provides for the operation and maintenance of 18 multiple purpose projects, including 4 navigation locks and dams, named in the list which follows. These projects have a current operational capacity of 1,726,200 kilowatts of hydroelectric power production. Annual requirements are for the operation and ordinary maintenance of project facilities, labor, supplies, materials, and parts required for the day-to-day functioning. The requested amount also includes the application of special recreation use fees for recreation areas.

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Arkansas			
Beaver Lake	3,848,000 (2,701,000) (1,147,000)	3,961,000 (2,555,000) (1,406,000)	1. None. 2. None.
Bull Shoals Lake	5,012,000 (2,394,000) (2,618,000)	4,416,000 (2,250,000) (2,166,000)	1. None. 2. None.
Dardanelle Lock and Dam	5,874,000 (3,171,000) (2,703,000)	5,793,000 (3,149,000) (2,644,000)	1. None. 2. None.
Greers Ferry Lake	4,466,000 (2,539,000) (1,927,000)	4,264,000 (2,564,000) (1,700,000)	1. None. 2. None.
Norfork Lake	3,486,000 (1,780,000) (1,706,000)	3,505,000 (1,761,000) (1,744,000)	1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

3. Multiple Purpose Power Projects (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Arkansas (Continued)			
Ozark-Jeta Taylor Lock and Dam	3,767,000	3,986,000	
	(2,205,000)	(2,133,000)	1. None.
	(1,562,000)	(1,853,000)	2. None.
Missouri			
Table Rock Lake	5,638,000	5,501,000	
	(3,200,000)	(3,192,000)	1. None.
	(2,438,000)	(2,309,000)	2. Continue rewind of Unit 3 Generator in FY 97.
Oklahoma			
Broken Bow Lake	1,811,000	1,691,000	
	(724,000)	(840,000)	1. Realignment of operations and maintenance funding to more realistically reflect work being accomplished.
	(1,087,000)	(851,000)	2. None.
Eufaula Lake	4,075,000	3,522,000	
	(2,241,000)	(2,054,000)	1. None.
	(1,834,000)	(1,468,000)	2. None.
Fort Gibson Lake	4,216,000	3,269,000	
	(2,210,000)	(2,207,000)	1. None.
	(2,006,000)	(1,062,000)	2. None.

1898

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

3. Multiple Purpose Power Projects (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Oklahoma (Continued)			
Keystone Lake	3,650,000 (2,044,000) (1,606,000)	3,545,000 (2,064,000) (1,481,000)	1. None. 2. None.
Robert S. Kerr Lock and Dam and Reservoir	4,378,000 (2,057,000) (2,321,000)	3,546,000 (2,029,000) (1,517,000)	1. None. 2. None.
Tenkiller Ferry Lake	3,275,000 (1,670,000) (1,605,000)	3,554,000 (1,868,000) (1,686,000)	1. Increase management of Natural Resource areas in FY 97. 2. None.
Webbers Falls Lock and Dam	3,141,000 (1,633,000) (1,508,000)	2,902,000 (1,565,000) (1,337,000)	1. None. 2. None.

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

3. Multiple Purpose Power Projects (Continued)

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	 FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 96 to FY 97 (10%+/-). 2. Major Maintenance Items Budgeted in FY 97 (Threshold $500,000).
Texas			
Denison Dam - Lake Texoma	5,828,000	5,275,000	
	(2,820,000)	(2,541,000)	1. None.
	(3,008,000)	(2,734,000)	2. None.
Sam Rayburn Dam and Reservoir	4,037,000	3,462,000	
	(2,367,000)	(2,414,000)	1. None.
	(1,670,000)	(1,048,000)	2. None.
Town Bluff Dam, B. A. Steinhagen Lake and Robert Douglas Willis Hydropower Project	1,421,000	1,571,000	
	(1,039,000)	(1,087,000)	1. None.
	(382,000)	(484,000)	2. None.
Whitney Lake	3,462,000	3,326,000	
	(2,343,000)	(2,375,000)	1. None.
	(1,119,000)	(951,000)	2. None.
	==========	==========	
TOTAL - MULTIPLE PURPOSE POWER PROJECTS	71,385,000	67,089,000	
	(39,138,000)	(38,648,000)	
	(32,247,000)	(28,441,000)	

1900

APPROPRIATION TITLE: Operation and Maintenance, General, Fiscal Year 1997

4. Protection of Navigation

Project Condition Surveys. The budget estimate of $60,000 provides for hydrographic surveys, inspections, and studies to determine the condition of navigation channels that do not have any other maintenance work included in the budget request and disseminate the information to users of the projects. For the projects that do not require maintenance, surveys are performed at many of them in order to determine the degree of sedimentation so that users can be advised of channel conditions and future maintenance can be scheduled.

State Project Name	ESTIMATED OBLIGATIONS ($) FY 1996 Total (Operations) (Maintenance)	FY 1997 Total (Operations) (Maintenance)	Reason for Change and Major Maintenance Items 1. Reasons for change in Operations from FY 95 to FY 96 (10%+/-). 2. Major Maintenance Items Budgeted in FY 96 (Threshold $500,000).
Project Condition Surveys			
Texas	40,000 (40,000) (0)	60,000 (60,000) (0)	1. Increase in hired labor costs in FY 97. 2. None.
TOTAL - PROTECTION OF NAVIGATION	40,000 (40,000) (0)	60,000 (60,000) (0)	
GRAND TOTAL - SOUTHWESTERN DIVISION	234,070,000 (115,524,000) (118,546,000)	233,210,000 (117,548,000) (115,662,000)	

1901

DEPARTMENT OF THE ARMY CORPS OF ENGINEERS
OFFICE OF THE CHIEF OF ENGINEERS

DETAILED STATEMENT
OF
MAJOR GENERAL STANLEY G. GENEGA
DIRECTOR OF CIVIL WORKS
ON THE REMAINING ITEMS OF THE FISCAL YEAR 1997
CIVIL WORKS BUDGET

PRESENTED BEFORE THE SUBCOMMITTEE ON
ENERGY AND WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS
OF THE HOUSE OF REPRESENTATIVES

MARCH 21, 1996

DEPARTMENT OF THE ARMY - CORPS OF ENGINEERS
OFFICE OF THE CHIEF OF ENGINEERS

DETAILED STATEMENT
OF
MAJOR GENERAL STANLEY G. GENEGA
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COMMITTEE ON APPROPRIATIONS, OF THE HOUSE OF REPRESENTATIVES

MARCH 21, 1996

INTRODUCTION

Mr. Chairman and members of the Subcommittee, I am honored to testify before you as Director of Civil Works.

I would like to note some highlights of the FY 1997 budget request for Remaining Items, which include the Corps nationwide programs and activities. These include the General Expenses appropriation, which provides for executive direction and management of the Civil Works program at the Corps Headquarters and the Division Offices.

REMAINING ITEMS OVERVIEW

The total for Remaining Items in the budget request is $440.952 million of which $51.985 million is for General Investigations; $83.617 million for Construction, General; $24.500 million for Operation and Maintenance, General; $112 million for Regulatory Program; $15 million for Flood Control and Coastal Emergencies; $153 million for General Expenses; and $850 thousand for Oil Spill Research.

ACTIVITIES UNDER THE GENERAL INVESTIGATIONS APPROPRIATION

NATIONAL DREDGING NEEDS STUDY OF PORTS AND HARBORS

The FY 1997 budget includes $0.575 million to complete this $2.5 million study of national port and harbor dredging needs. The study is in response to Section 402 of the Water Resources Development Act of 1992 which authorized the conduct of such studies as necessary to provide a report to Congress which assesses the dredging needs of the national ports and harbors of the United States.

COOPERATION WITH OTHER FEDERAL AGENCIES, STATES, AND NON-FEDERAL INTERESTS

The request for Cooperation with Other Federal Agencies, States, and non-Federal Interests is $8.54 million, an increase of $2.731 million from the FY 1996 allocation of $5.809 million for these activities. Following is a comparison of the FY 1996 allocation and the FY 1997 request for activities under this program:

ACTIVITY	FY 1996 Allocation	FY 1997 Request
Cooperation with other Water Resources Agencies	356,000	480,000
Planning Assistance to States	1,482,000	3,000,000
Special Investigations	2,742,000	3,400,000
Gulf of Mexico Program	222,000	300,000
Interagency Water Resources Development	741,000	1,000,000
National Estuary Program	133,000	180,000
North American Waterfowl Management Plan	133,000	180,000

A major portion of this request is $3 million for Planning Assistance to States, including all 50 states, the District of Columbia, Puerto Rico, the Virgin Islands, American Samoa, Guam, the Commonwealth of the Northern Mariana Islands and Federally recognized Indian Tribes. The Program is cost-shared at 50% Federal, 50% non-Federal. Since FY 1991, we have executed over 370 cost-sharing agreements with 47 states and 15 Indian Tribes.

This request represents a significant increase over the FY 1996 allocation. The 1993 Midwest floods; the 1994 floods in Georgia, Florida, and Texas; the January 1995 floods in California; and the January 1996 floods in Pennsylvania, Maryland, and Virginia, Oregon, and Washington have raised public awareness and increased the demand for assistance in resolving water resource problems. The FY 1997 increase will enable the Corps to provide much needed planning and technical assistance to States, local communities, and Federally-recognized Indian Tribes to aid them in a wide variety of water resource efforts, including environmental restoration studies and watershed planning. Study scopes and cost-sharing agreements have been negotiated for a significant number of studies for states, communities, and Indian Tribes. The FY 1997 request will allow the Corps to initiate and complete these studies.

Another major portion of the request is $3.4 million for Special Investigations, including: review of applications referred to us by the Federal Energy Regulatory Commission for permits or licenses for non-Federal hydropower developments at, or affecting, Corps water resource projects; review of reports and environmental impact statements of other agencies; and special studies and initial assessments of water resources problems in response to local requests not elsewhere funded.

Additionally there is $480,000 for cooperation with other water resources agencies and $180,000 each to continue cooperation with Federal and state agencies in the Environmental Protection Agency's National Estuary Program and with Federal and state agencies, and non-Federal

interests in support of the North American Waterfowl Management Plan administered by the U S Fish and Wildlife Service.

COLLECTION AND STUDY OF BASIC DATA

The FY 1997 request of $15.870 million for Collection and Study of Basic Data is an increase of $2.088 million from the FY 1996 allocation of $13.782 million for these activities. Following is a comparison of the FY 1996 allocation and the FY 1997 request for activities under this program

ACTIVITY	FY 1996 Allocation	FY 1997 Request
Coastal Field Data Collection	2,668,000	1,500,000
Flood Plain Management Services	6,374,000	10,000,000
Hydrologic Studies	519,000	500,000
International Water Studies	371,000	300,000
Precipitation Studies (National Weather Service)	296,000	500,000
Scientific and Technical Information Centers	130,000	150,000
Stream Gaging (U S Geological Survey)	571,000	770,000
Transportation Systems	704,000	950,000
Remote Sensing Support	222,000	300,000
Flood Damage Data	0	250,000
Automated Information System Support	1,927,000	650,000

One new activity is included in the FY 1997 budget request.

Flood Damage Data Collection. The FY 1997 budget request includes $250,000 to initiate a program to improve the technical accuracy and quality of flood and storm damage data including the relationship of flood characteristics to property damage. This program will facilitate the timely collection of data when a damaging event occurs and the development of a national flood damage database to support local, state and Federal studies and research.

Automated Information System Support. The FY 1997 request of $650,000 is for the Tri-Service CADD/GIS Support Center. This activity was included under General Expenses in our FY 1996 program request. It is more appropriately funded under General Investigations. The $650,000 represents the Civil Works share of the total $3,050,000 required to operate and maintain this important center of expertise. The remainder of the total requirement is provided by the Navy, the Air Force, and from Army military appropriations, in accordance with a 1992 agreement, establishing a Tri-Service center in order to minimize duplication of effort of the three services. All phases of

Corps work, including planning, real estate, design, construction, operations, maintenance and readiness benefit from CADD/GIS technologies

Two of the largest programs, Flood Plain Management Services and Coastal Field Data Collection will be highlighted individually.

Flood Plain Management Services. The largest portion of the Collection and Study of Basic Data request is $10 million, for the Flood Plain Management Services program, an increase of $3.626 million from the FY 1996 allocation.

This program continues to be one of the most important non-project services that the Corps provides for Federally recognized Indian Tribes, states, and local governments. By working together with state, local, and tribal land use decision makers, we are able to alert them to various flood hazards, promote prudent use of the flood plains, and help mitigate future losses to life and property. As documented in the report of the Floodplain Management Review Committee on the 1993 Midwest floods, the active involvement of land use decision makers is the key to sound flood plain management in the United States.

The 1993 Midwest Floods; the 1994 floods in Georgia, Florida, and Texas; the January 1995 floods in California; and the 1996 floods in Pennsylvania, Maryland, Virginia, Oregon, and Washington have raised public awareness and increased the demand for information and assistance for mitigating flood losses. The increased funding will provide a higher level of flood plain management services to a greater number of state, regional, local governments, Indian Tribes, and other non-Federal public agencies who, in turn, invest their own funds to avoid flood hazards and make good use of the flood plains. This not only mitigates future losses to life and property but also reduces the need for costly Federal flood control works as well as the demand for other Federal, state, and local services such as providing major disaster assistance before, during, and after floods.

Under this program, we also participate with the Federal Emergency Management Agency, the National Weather Service, and local governments in conducting critical pre-disaster hurricane evacuation and preparedness studies for mobilizing local community responsiveness to natural disasters in high hazard coastal areas of states and counties along the Atlantic Ocean and the Gulf of Mexico.

Coastal Field Data Collection. The FY 1997 request for this activity is $1.5 million to systematically collect coastal field data required to perform the Corps coastal missions. The program collects long-term data encompassing winds, waves, currents, and water levels, including severe storm and hurricane effects. These data are needed to maintain and repair more than 800 existing coastal navigation and storm damage reduction projects; provide operational guidance for dredging and navigation activities; and to design and perform economic evaluations of coastal projects.

The required data are regional in nature and not properly chargeable to authorized projects. Data are generally unavailable in existing archives, are of uncertain or poor quality, or are too sparsely distributed temporally and spatially to have statistical viability. Sufficient time is not available before or during project preauthorization planning studies to accumulate the years of baseline data necessary for adequate assessment of technical, economic, and environmental feasibility. Through the Coastal Field Data Collection Program, the Corps gathers and analyzes data on a regional basis

and statistically enhances and extends this data base for use on individual studies, projects and other activities.

Data collection is enhanced through interagency coordination and cooperative agreements with various states. These agreements enable as much as 30 percent of the program to be leveraged and provide a mechanism for other Federal, state, and local agencies to collaborate in the collection of coastal data. These data have considerable applicability for Federal, state and local agencies including academia, and are made available via the Internet.

RESEARCH AND DEVELOPMENT

The FY 1997 request for Research and Development (R&D) under General Investigations is $21.5 million. This is a modest increase of $3.9 million from FY 1996, and represents less than 0.7 percent of the Corps total Civil Works budget request for FY 97

The Civil Works R&D program is formulated to directly support the established business practices and strategic directions of the Civil Works Program including: Flood Control; Inland and Coastal Navigation; Environmental Quality (including environmental compliance, environmental restoration and the Corps regulatory responsibilities), Water Supply, Hydropower and related water management issues; Emergency Operations, and Recreation. The Civil Works R&D requirements are primarily user driven and the effort is essentially a problem solving process by which the Corps systematically examines new ideas, approaches, and techniques, with a view toward improving the efficiency of its planning, design, construction, operations and maintenance activities

This program continues to provide practical end products and a high return on investment for the Corps and the taxpayer. The following are some examples of benefits derived from this program in FY 1996.

* Tested method for accurately measuring vertical and horizontal locations of ships and/or tows in navigation channels using Differential Global Positioning System. This methodology is being used to accurately determine for the first time the sinkage of these vessels in navigation channels to enable defining operational underkeel clearances, and, hence, required channel depths and benefits. This new technology has the potential for significant savings in future construction and operations and maintenance dredging costs.

* Published Corps Guidance on alternative procedures to determine residential and business structure values and the applicability of each of those methods for use in Corps of Engineer flood damage reduction studies.

* Techniques were developed to measure offshore tidal datums, and the hydraulic gradient of rivers using differential Global Positioning Systems (GPS). Detailed analysis of the testing revealed that the GPS techniques allow tidal datums to be developed with equal, or better, accuracy as compared to conventional techniques. The benefit of the GPS is that the datum, or water surface slope, can be measured at the location of interest, without regard to any physical constraint such as a structure to mount a gauge. Tidal datums, the real time tide height of a survey or dredge, or the slope of the Mississippi River can now be measured directly at the project site with no need for developing theoretical water surfaces of tidal zones, providing more cost effective, timely and accurate coastal and riverine engineering solutions and specifications.

* Completed work on a current year operating budget system which provides Corps Operations Managers with efficient and effective procedures for tracking and monitoring the current year O&M budget.

* Completed bendway weir spacing and angle design guidance for shallow-draft navigation channels which will improve navigation conditions and safety and reduce dredging costs by millions of dollars in riverbends and with significantly reduced navigation delays.

* A method was developed to predict currents and drawdown created by vessel passage which will provide the underlying technical capability to determine environmental impacts and simultaneously improve bottom and bank protection.

* Developed a comprehensive life-cycle history of Sturgeon, which is a Federally classified threatened species of fish. This information is critical to preventing project delays, preclude increased project costs, and avoid adverse impacts on sturgeon populations from Corp's dredging activities. It is estimated that the Vicksburg District saved approximately $300,000 by utilizing guidance: similar savings can be expected from numerous other Corps projects with like concerns.

Risk Analysis for Water Resources Investment Research Program. As part of the basic research and development program, $1.3 million is requested for FY 1997 to continue the Risk Analysis for the Water Resources Investments Research Program that was initiated in 1992. The objective of the program is to develop improved analysis and decision making techniques. These techniques help identify, quantify, evaluate, and communicate the risk and uncertainty inherent in all water resources activities. The ultimate goal is to enhance decisions by providing information on the tradeoffs between risks and costs. Often this allows the achievement of the desired engineering and economic performance but at a reduced cost. The research program has aided in making the Corps a leader in the application of risk-based approaches to water resources problems. Significant accomplishments in FY 1996 include:

* Completion and distribution of an initial version of specialized computer software for quantifying the engineering and economic uncertainties for flood damage reduction project formulation and evaluation. The model will reduce the cost and time of all flood damage reduction feasibility reports and support the adoption of project features that cost less but do not sacrifice overall flood protection reliability.

* Completed calibration reliability models and initial reliability assessment methodology for steel piles, steel cracking and concrete overstressing over time, and lock chamber approach walls on timber cribs for use in the evaluation of major rehabilitation alternatives for existing projects. These procedures will reduce the cost and enhance the scientific soundness of risk information in major rehabilitation reports.

* Completion and distribution of an initial version of computer software for combining engineering reliability and economic cost for assessing the risk-based life cycle cost of existing projects and major rehabilitation proposals. This model will reduce the cost of quantifying the benefits from major rehabilitation and help assure that only those rehabilitations economically justified will be recommended for funding.

Budget constraints, increased partner cost sharing and public concern for project performance and reliability have galvanized the need for risk-based approaches. The methods and procedures

developed will give the Corps the tools to make better decisions and to inform our cost sharing partners and the public on performance and cost of water resources projects

Earthquake Engineering Research. The FY 1997 funding request for $2 million will be used to continue the Earthquake Engineering Research Program. This is the only significant Federal R&D program focused on eliminating inadequacies in present seismic safety evaluation knowledge for dams. The Corps may be required to expend more than $10 billion to assure adequate seismic performance of its 580 dams unless advancements continue to be made in earthquake dam safety analysis. Most Corps dams were built before seismic hazards were recognized or well understood. More than 200 high hazard dams and 73 intake towers have been identified as subject to severe earthquake shaking. Cost estimates are on the order of $0.5 to 1.0 billion to replace a dam, $100 million to remediate a concrete dam or outlet works, and $10's of millions to remediate an embankment dam. Expensive remediation actions are being considered for many Corps dams. For example, Arkabutla, Enid, Wappapello, Success, Tuttle Creek have been identified and the number is rising due to an increased seismic threat in the western U.S. Virtually all 73 intake towers would be judged inadequate with today's analysis techniques, which translates into about $7 billion in repair costs. Remediation designs are necessarily conservative to overcome shortcomings in the state-of-the-art in earthquake engineering.

This program offers the potential for vast cost savings in seismic remediation efforts by performing focused research to ensure that safe dams are not remediated and that dams that are unsafe are remediated as quickly, efficiently, and cost effectively as possible.

Accomplishments over the last two years include:

* Developed preliminary guidelines for assigning ground motions for near-field sites where vertical components are significant.

* Measured reservoir bottom reflection (a), a critical parameter in dynamic analysis of concrete dams, at 7 dams (a has values of about 0.5 not 1.0 as historically assumed). This implies the damaging dynamic tensile stresses are approximately 50 percent lower than previously estimated.

* Critically surveyed existing constitutive models and numerical codes for applicability to seismic failure mechanisms for dams.

* Integrated USBR and Corps shear wave velocity data bases for screening analyses (More than 100 copies of this data base has been sent to Corps offices, universities and private firms).

* Completed design of centrifuge tests for overburden corrections used in liquefaction analyses.

* Completed survey of existing intake towers and began laboratory tests.

* Developed a model stress calculation procedure for finite element time history analyses.

* Reconnoitered failure of three embankment dams shaken by the 1995 Kobe earthquake.

Zebra Mussel Control Research Program. Funds are being requested in the amount of $1.5 million for FY 1997 to continue this extremely high-priority program. The Zebra Mussel Research Program (ZMRP) is the only Federally authorized program which addresses control of zebra mussels. The focus is to develop environmentally sound methods to control zebra mussels at or near public facilities. The zebra mussel has spread throughout the eastern half of the U.S. and threatens the rivers and water supply systems of the western States. Over $100 million is spent annually to prevent

catastrophic shutdown of public facilities in the east and central U S. This cost could increase to over half a billion dollars annually by the year 2000. More cost effective and environmentally sensitive methods are required to control the invasion of the non-native mussel, while there are natural predators in the United States, their impact on the species population is ineffective.

The ZRMP is scheduled for completion in FY 1999. Research areas include the development of antifoulant coatings, filter systems, the use of electrical fields, the development of environmentally compatible biocides, and biological control using microorganisms. Some of the successes thus far include the development of monitoring protocol to detect initial invasion into new areas, the verification of a filter system to prevent entry of all life forms of zebra mussels, including the microscopic larval stage, and the use of carbon dioxide for control of zebra mussels. The program is transferring this technology through the development of a computer based information system and engineering handbooks for facility managers and operators of locks and dams, water supply and treatment facilities, power plants, and vessels which will identify the vulnerability of their facility and provide control options.

Characterization and Restoration of Wetlands Research Program. FY 1997 is the second year of this $20 million, research effort. Funding in the amount of $1.112 million was allocated for FY 1996 and the FY 1997 request is $2.0 million. Past research has focused on wetlands identification and delineation and resulted in nationally accepted Wetlands Delineation Manual. The focus of this program is to provide a greater understanding of wetlands functions and develop techniques to evaluate and restore the ecological functions of wetlands at the regional level. The techniques resulting from this basic and applied research will decrease agency administrative costs and provide more rapid, scientifically defensible wetlands determinations for the public at a more regional level. In addition, this information will significantly expedite long-term success of private or government initiated wetlands' restoration/creation projects. It will also eliminate currently ambiguous national criteria which is not valid for numerous geographic regions. FY 1996 accomplishments to date include development of the Wetlands Classification System, development of Regional Guidebooks for Wetlands Functional Assessment, and development of an Engineering Handbook for Wetlands Restoration. Additional research will continue to develop, evaluate, and field test new and innovative technologies, engineering design criteria, and contract-ready specifications for wetlands restoration and creation.

The Corps of Engineers is the national leader in wetlands technology. The Corps Wetlands Delineation Manual is now the national standard and subsequent guidance that will result from this program will provide for consistently applied techniques in wetlands functional evaluation and restoration/creation that will provide further savings of taxpayer dollars.

Total Civil Works Research And Development Funding. The conference report, House Report number 102-177, accompanying the FY 1992 Energy and Water Development Appropriation Act stated the conferees concern with the trend of spreading research related programs throughout several appropriation accounts in the Civil Works budget request, and directed the Corps of Engineers to work with the committees to address this issue. In response to this interest by the committees the following table has been developed to provide a consolidated display of all Civil Works research and development activities for which there is a request for funding in the FY 1997 budget:

ACCOUNT AND ACTIVITY	DOLLAR AMOUNT
GENERAL INVESTIGATIONS	
General Research and Development	21,500,000
Earthquake Engineering	2,000,000
Zebra Mussel Control Research Program	1,500,000
Characterization & Restoration of Wetlands	2,000,000
CONSTRUCTION, GENERAL	
Aquatic Plant Control	2,500,000
OPERATION AND MAINTENANCE, GENERAL	
Coastal Inlet Research	2,000,000
Repair, Evaluation, Maintenance, and Rehabilitation Research	2,000,000
River Confluence Ice Research	500,000
Dredging Operations & Environmental Research	1,000,000
GENERAL EXPENSES	
Coastal Engineering Research Board	325,000
OIL SPILL RESEARCH	$50,000
GRAND TOTAL	$36,175,000

ACTIVITIES UNDER THE CONSTRUCTION, GENERAL APPROPRIATION

CONTINUING AUTHORITIES

The 1997 request for the six Continuing Authorities funded under Construction, General is $41 million, an increase of $13.6 million from the FY 1996 appropriation. The request covers funding of planning, design, and construction to provide solutions to flood control and emergency streambank erosion problems under the Section 205 and Section 14 programs, navigation problems under the Section 107 program, shoreline damage problems under the Section 103 and Section 111 programs, and clearing and snagging problems under the Section 208 program. Under our Continuing Authorities Program (CAP), projects are accomplished expeditiously and result in a high level of customer satisfaction. Over the last two years, the program has been streamlined substantially, contributing to improved program execution. Continuing Authorities projects continue to be an important segment of our total water resources infrastructure investment program.

INLAND WATERWAYS USERS BOARD

Funds are requested for FY 1997 in the amount of $225,000 for the Inland Waterways Users Board activity. Section 302 of the Water Resources Development Act of 1986 created this eleven-member advisory board of inland waterway users and shippers to make recommendations to the Secretary of the Army and the Congress regarding construction and rehabilitation priorities and

The Aquatic Plant Control Research Program is authorized by Section 104 of the Rivers and Harbors Act of 1958, as amended, and provides for R&D for the control of noxious aquatic plants in navigable waters.

Significant accomplishments to date include:

* A reduction of water hyacinths in the Gulf Coast States and California of over 3 million acres. In Louisiana alone, water hyacinth was reduced from 1.5 million acres in 1977 to 150,000-200,000 acres by 1985, at an annual savings of $11-15 million over the costs of conventional control methods.

* A nationwide reduction of alligator weed, at an estimated savings of $5-7 million/year, since 1979.

* The release of four biocontrol agents from Australia and Asia on hydrilla that infests the waters in 17 states and the District of Columbia.

* The discovery of two biocontrol agents for Eurasian watermilfoil, currently undergoing host specificity investigations in US quarantine facilities. Eurasian watermilfoil infests the waters in 43 states and the District of Columbia.

* Environmentally sound and cost-effective techniques of herbicide application. Costs of herbicide applications are reduced, but effective concentrations are estimated to save $10-15 million per year across areas of the nation infested by hydrilla.

* Development of the ARPOPOS (Aquatic Plant Resource Operations and Planning Online Support) System, a computer-based aquatic plant management planning tool that will benefit managers in developing systematic, standardized plans, as well as providing access to volumes of information, knowledge, and solutions concerning aquatic plant management.

DAM SAFETY ASSURANCE

Funds in the amount of $2.0 million are recommended for the Dam Safety Assurance Program for new starts that may be approved during FY 1996 and FY 1997 as the result of studies now underway. This would provide for the modification of completed Corps of Engineers dam projects that have a potential for failure from the occurrence of extremely large floods and seismic events.

EMPLOYEES' COMPENSATION

The request includes $18.892 million, an increase of $92,000 from the FY 1996 appropriation, for transfer to the Department of Labor to replenish the Employees' Compensation Fund, for costs charged to that Fund during the period July 1, 1994 through June 30, 1995. The transfer is for payment of benefits and claims on account of injury or death of Corps of Engineers Civil Works employees.

ACTIVITIES UNDER THE OPERATION AND MAINTENANCE, GENERAL APPROPRIATION

Two new initiatives are proposed under the Operations and Maintenance, General, appropriation account. They are: (1) Dredging Operations and Environmental Research (DOER), and (2) Operations Technical Support(OTS).

COASTAL INLETS RESEARCH PROGRAM

The FY 1997 budget includes $2.0 million to fund the fourth year of the 6-year $20 million Coastal Inlets Research Program. Coastal inlets and adjacent shores are more complex than any other natural water resources hydraulic system. A major portion of the coastal operation and maintenance budget is expended in dredging channels or repairing structures such as jetties and training dikes associated with over 100 coastal inlets in the U.S. The projected cost to the Corps for inlet projects over the next 20 years is $8 billion. Because these systems are so complicated, practical solutions for determining orientation and dimension of Corps projects (e.g. navigation channels, jetties, and sand bypassing systems)and for minimizing the impact of these projects on adjacent shorelines tends to be disproportionately conservative and therefore costly. This program will provide guidance in selecting the most cost-effective option for attaining navigability and minimizing the impact of projects on adjacent shorelines.

In FY 1996, the program established methods to replicate sand movement in models, began the process of identifying sand transport paths, and finalized empirical relationships to predict scour and methods to prevent and repair scour damage at coastal inlet structures. A four-year comprehensive and synoptic field measurement exercise was initiated at Ponce de Leon Inlet to verify and validate sand movement models and to obtain data for the analyses of inlet response to storms. Results from this single intensive effort will be applicable at most Federal inlet navigation projects.

DREDGING OPERATIONS AND ENVIRONMENTAL RESEARCH (DOER) PROGRAM

An initial increment of funding of $1 million is requested in FY 1997 to initiate a proposed eight year, $48 million DOER Program. The objective of DOER is to balance environmental and operational requirements while economically maintaining a viable navigation system. Research is required to address operations and environmental demands in six major areas: contaminated sediment characterization and management; instrumentation for monitoring and site management, near-shore and off-shore placement of dredged materials; environmental windows for dredging operations; innovative equipment and technologies demonstration; and, environmental risk management for dredging and disposal activities. Benefits will include application of environmental windows, cost-effective identification and management of contaminated sediments, greater flexibility for dredging in sensitive ecological areas, and expanded options for beneficial uses of dredged materials. The potential for savings from the development of screening techniques for dioxin contaminated sediments is significant; currently the cost of analyzing a single sediment sample for dioxins exceeds $1500 and many hundreds of samples are required at each navigation project where dioxins are suspected

MONITORING OF COMPLETED COASTAL NAVIGATION PROJECTS

The FY 1997 request of $1.9 million for Monitoring of Completed Coastal Navigation Projects will provide for the continuing program of monitoring critical engineering parameters of selected coastal navigation projects to determine and analyze project-induced changes in topography, currents, tidal stages, and other coastal processes phenomena. The data collected and analyzed are used to evaluate project performance in relation to design, operation, and maintenance expectations. These evaluations are then used to develop improved designs for coastal navigation projects or desirable modifications in their operation or maintenance modes. Studies are performed at the local level to evaluate project performance and coastal processes response in relation to the particular needs of each project. Additionally, the information is collected and analyzed from a Corps-wide perspective to document successes and the sometimes costly lessons learned and to transfer the information into guidance for field and management staff. The information developed by this program is made available to other Federal, state, and local agencies concerned with planning and regulating the conservation, development, and use of coastal resources.

REPAIR, EVALUATION, MAINTENANCE, AND REHABILITATION (REMR-II)

Eighty-five percent of the Corps of Engineers' hydraulic structures are over 20 years old, 60 percent are over 30 years old, and 20 percent are over 50 years old. The increasing age of these structures is the primary reason that the Corps' O&M cost has grown to 48 percent of its budget. The objective of the REMR Research Program is to identify and develop innovative techniques that will reduce the cost to maintain the Corps' aging civil works infrastructure and to extend its service life.

The initial REMR (REMR-I)research program clearly demonstrated benefits of advanced technology for repair and maintenance of the Corps Civil Works infrastructure. That program is credited with at least $200 million in savings and cost-avoidances from the $35 million research investment (a 5.7 to 1 return on investment). The FY 1997 request includes $2 million for the REMR-II Program which is in its sixth year and has already produced a number of innovative concepts and techniques. These include: a new design for navigation lock lift-gates that eliminates the need for replacement caused by poor fatigue resistance inherent with previous designs, cost-effective reservoir shoreline erosion control techniques, improved maintenance procedures for hydraulic structures containing lead pigmented paints to reduce adverse environmental effects, a patented concrete armor unit for rubble-mound structures that will significantly reduce the cost of coastal structure repair, and numerical modeling systems for more economical evaluation and repair of high-velocity channels.

Technology developed to date in REMR-II will result in cost savings or avoidances of $25 million, and an estimated $150 million will be realized upon completion of this $31.8 million program in FY 1998. This program helps to ensure that the Corps obtains the maximum value for funds expended on maintenance and repair. Much of the technology being produced in REMR-II has application outside the Corps of Engineers and is transferred to other Federal agencies, state and local agencies, and the private sector.

RIVER CONFLUENCE ICE RESEARCH

The amount of $0.5 million is requested in FY 1997 to fund the third active year of the River Confluence Ice Program. This program was suspended after its second year, when funding for FY 1996 was eliminated. Originally conceived as a five-year $4.5-million program, the amount requested is consistent with a longer, less-intensive effort to address the ice jams at river confluences that are a major source of winter damage to Corps projects, the navigation industry, and river communities. The aim of this program is to develop practical methods for use by Corps field operating activities to reduce the incidence or severity of ice-jam-induced problems. Before the funding hiatus, the recent performance of existing domestic and foreign ice-control structures was documented with positive results. Additionally, promising experiments were conducted on localized ice weakening using environmentally benign methodologies. Ice weakening techniques can help minimize or even prevent the formation of severe ice jams that can result in flooding.

Products of the program will include models to predict ice conditions and potential for jamming at river confluences, evaluation of the effects of Corps project operations and channel modifications on ice jam formation, and methods to control the breakup and release of river ice. The program is expected to result in substantial savings by reducing Corps operations and maintenance costs, in reductions of shipping delays and damage to vessels, and through reductions in flooding and direct ice damage to riverine property and communities.

NATIONAL DAM SAFETY PROGRAM

By Executive Order 12148 and Presidential Directive, the Federal Emergency Management Agency (FEMA) was designated as lead agency in efforts to enhance national dam safety. In 1979, FEMA established the Interagency Committee for Dam Safety (ICODS) consisting of nine Federal agencies having responsibilities for dam safety. The Corps is a member agency. The purpose of ICODS is to coordinate, promote, and enhance the Federal and state dam safety programs and develop consistency in technical practices and management policies. The Corps and FEMA signed a Memorandum of Understanding (MOU) in 1992 for the purpose of establishing responsibilities for management and administration assistance in the implementation of the National Dam Safety Program. The MOU was entered into pursuant to the Economy in Government Act, 31 U.S.C. 1535. A principal objective is to provide for allocation of Corps funding to FEMA on a programmatic rather than project-specific basis to enable development of a more systematic approach to effecting national dam safety. FEMA will provide support in development of federal guidelines for dam safety, promotion of public awareness programs, publications, training materials, and workshops. The budget request for FY 1997 includes $20,000 to continue this participation.

CULTURAL RESOURCES (NAGPRA/CURATION)

The Native American Graves Protection and Repatriation Act of 1990 addresses the recovery, treatment, and repatriation of Native American and Native Hawaiian cultural items by Federal agencies and museums. Cultural items are defined as human remains and associated and unassociated items having to do with funerals and/or burials, sacred objects, and objects of cultural patrimony. The

Department of the Interior is in the process of developing a set of Federal regulations for compliance with the provisions of this Act. In the meantime, the Corps is requesting funds because of the immediate impacts and reporting requirements it imposes. In FY 1996, Corps field offices continued an inventory of those cultural items which were started in FY 1994 and continued in FY 1995. Information will be made available to interested individuals and groups through notices in the Federal Register and Corps field offices will engage in formal consultation with tribes and organizations to repatriate cultural objects for which there are claims. In addition, the Corps has established the St. Louis District as a center of expertise for the curation of a large volume of cultural resource materials collected from its flood control projects over the years. The FY 1997 budget request is $2 million to continue this program.

PEER REVIEW PROGRAM

In FY 1994 the Corps instituted a program to provide a systematic procedure for a broad-scope evaluation of operations, construction and readiness programs by visiting teams of peer professionals. The objective is to achieve maximum management performance at Civil Works projects and activities throughout the Corps by taking advantage of the collective expertise of the Corps professional staff. The FY 1997 request includes $200,000 which is the estimated annual cost of this continuing program.

PROTECTION OF NAVIGATION

The FY 1997 budget request for Protection of Navigation totals $5.030 million and includes funding for four continuing programs under this category. The first program is the Dredging Data and Lock Performance Monitoring System ($480,000) which provides data for efficient management of navigation projects consistent with federal laws regarding execution of our dredging program. The program also includes a continuing evaluation of local conditions and performance measures throughout the navigation system to facilitate traffic control and critical management decisions. The second is for work pursuant to the authority provided in Section 3 of the 1945 River and Harbor Act to protect, clear and straighten channels in navigable waters for small projects not specifically authorized by Congress ($50,000). The third program is for removal of sunken vessels and other obstructions ($500,000). The fourth program is for the collection of waterborne commerce statistics pertaining to rivers, harbors, and waterways, and publication of such data ($4,000,000).

NATIONAL EMERGENCY PREPAREDNESS PROGRAM (NEPP)

Preparedness for response to national emergencies, including catastrophic disasters, is a fundamental Governmental obligation. From support to national mobilization during world War II through response to events such as Hurricane Andrew, the Northridge Earthquake and the 1993 Midwest Floods, the importance of the Corps' role associated with this responsibility has been amply demonstrated.

The National Emergency Preparedness Program (NEPP) is the civil component of Corps National Security Emergency Program and a vital element of Corps readiness. It supports initiatives

required by Executive Order 12656 "Assignment of Emergency Responsibilities" and National Security Directive 66. The program provides the capability to rapidly and effectively respond to a broad spectrum of catastrophic technological and natural disasters, having national implications. The mechanism for the implementation of this response is the Federal Response Plan (PL 93-88 as amended) or DOD Directive 3025.1 "Military Support to Civil Authorities". The NEPP and Flood Control and Coastal Emergencies (FC&CE) programs are complementary. However, the NEPP supports planning and preparation for scenario specific catastrophic disasters (natural and technological) of national proportions, so great that resources from the FC&CE appropriation would not be sufficient. Additionally, NEPP planning goes beyond disaster response to include planning for the Continuity of Operations/Government, Emergency Water Program and other national disaster preparedness and recovery activities. The high level and broad spectrum of preparation associated with the NEPP provides synergistic benefits to FC&CE funded efforts.

A substantial portion of the NEPP funding pays for the salaries of the emergency planners who lead in the development of scenario specific catastrophic disaster plans and the functional personnel (e.g. engineering, contracting etc.) who provide supporting data and plans. The planners also coordinate and conduct exercises with Federal, state and local governments and, during emergencies, serve as part of the emergency response teams which coordinate the Corps response. These personnel and their activities enable the Corps to respond effectively to disasters such as Hurricane Andrew and the Northridge Earthquake. Absent the readiness funding that supports these activities, the Corps response to these events would not have been as capable or as timely. The $5.5 million requested in FY 1997 for the NEPP will enable us to maintain our current, minimal, levels of preparedness while continuing to develop catastrophic disaster preparedness.

OPERATIONS TECHNICAL SUPPORT (OTS)

Operations Technical Support (OTS) is a continuing program with a FY 1997 allocation request of $2.65 million to provide technical assistance and support that are of general use at all operating projects. The ongoing Dredging Operations Technical Support (DOTS) program, formed in 1978, is the major component and supplies direct environmental and engineering technical support to all Corps elements in support of maintenance dredging projects, training of Corps staff on the latest environmental and engineering techniques associated with dredging and dredged material management; short-term work efforts to address generic Corps-wide technical dredging and dredged material disposal problems and; technology transfer of new and emerging techniques in assessment and management of dredged material for determining compliance with environmental protection statutes.

As technical personnel at the district level continue to be lost to private industry, the DOTS program is called upon more frequently to accomplish technical support for maintenance dredging and disposal projects. The state-of-the-science for testing and evaluating dredged material is advancing more quickly than our ability to interpret the data into decision making. The DOTS program supports scientists in a centralized location for mobilization at Corps projects. Highly contaminated sediments continue to be found at Corps projects (such as dioxin at Port Elizabeth/Newark). The Corps must maintain the technical capability through the DOTS program

for response at those projects. The expertise obtained through the DOTS program is not available through any other source.

Ongoing dredged material management tasks include efforts to assist in using implementation manuals for the Clean Water Act and the Marine Protection, Research, and Sanctuaries Act. Guidance is being developed for the application of techniques and methodologies for the management of contaminated dredged material to include risk management, equipment selection, confined disposal facility management, and quality assurance/quality control guidance. For example, a joint Corps/Environmental Protection Agency task force was formed under this program to develop analytical procedures and a decision making framework for dioxin contaminated dredged material.

The two other features of the OTS program include natural resources technology transfer and water management technology application at our operating projects. OTS will address only those issues having Corps-wide application. These issues are more efficiently accomplished through a comprehensive interdisciplinary approach from a centralized program to maximize cost effectiveness and ensure the broadest dissemination of technology. Timely and Corps-wide implementation of new and emerging technology offers cost-savings at projects and improves our ability to accomplish the water management and natural resource missions. OTS also provides funds to implement a national recreation reservation service which will provide for a procedure to increase occupancy rates and income at water resources projects managed by the Corps. With this service, data gathering, fee collecting and accounting responsibilities will be transferred to a campground reservation contractor, freeing up time for on-the-ground park personnel. Occupancy rates are projected to increase with the reservation system's advantages of referrals, marketing, assured sites and improved customer satisfaction. Once implemented, we estimate a minimum increase in user fee revenue of $7 million annually. Our OTS activities are coordinated with other federal, state and local agencies that share in water resources development and management.

EARTHQUAKE HAZARDS REDUCTION PROGRAM FOR BUILDINGS AND LIFELINES

The Earthquake Hazards Reduction Program for Buildings and Lifelines was established in response to Public Law 101-614, the National Earthquake Hazards Reduction Program Re-authorization Act. Its purpose is to establish a systematic approach to reducing loss of life, injuries, and economic costs resulting from earthquakes at Corps public works and utility systems including electrical power, transportation, water supply, sewers, telecommunications, and gas and liquid fuels. The program was first budgeted in FY 1995 for the single source management of funds for preparation of guidance and training for district personnel to conduct seismic evaluations, to initiate the evaluations, and to provide assistance in carrying out the program and assuring uniformity in results of the evaluations. This effort is scheduled for completion in FY 1999 at a total estimated cost of $8.5 million. The FY 1997 budget request is $700,000.

MISSISSIPPI RIVER BASIN MAINSTEM MODEL DEVELOPMENT

The Mississippi River Basin drains approximately 41 percent of the continental United States. Although hydrologic model studies contributed to the design of the various flood control structures

on the tributaries of the Mississippi River, a comprehensive model is needed to operate the mainstem as a system under conditions such as the Great Flood of 1993. The Mississippi Basin Model (MBM) served this purpose until its recent decommission due to advanced age and cost of maintenance. As a logical substitution for the MBM, a mainstem mathematical model must be developed. The estimated total cost for its development is estimated at $2.375 million. The budget request includes $500,000 to complete the model development in FY 1997.

RELIABILITY MODELS PROGRAM FOR MAJOR REHABILITATION

The budget request also includes $500,000 for the Waterways Experiment Station to support districts with a Reliability Models Program for Major Rehabilitation. Some examples include reliability models needed for determining sliding stability parameters for difficult foundation conditions, conducting stress analyses of hydropower turbine blades and shafts, and evaluation of structural integrity based on recent flood data. This is a continuing program with an estimated average annual cost of $500,000.

ACTIVITIES UNDER THE REGULATORY PROGRAM APPROPRIATION

In 1993, the President convened an interagency, White House-led working group to develop sound Federal policies to ensure wetlands programs are fair, flexible and effective. That same year, the President released a forty-point plan to support these policies. One of the plan's initiatives, now completed, is an interagency agreement giving the U.S. Department of Agriculture the lead for wetland determinations on agricultural land. We have issued guidance to Corps regulators that "all wetlands are not the same" in terms of functions and values. Other improvements include a new general permit that allows landowners to impact up to a half-acre of wetlands when building a single family home. We are finalizing a process for landowners to administratively appeal Corps wetland determinations or permit denials. Soon we will issue final guidance on the use of programmatic general permits which will encourage cooperation with state agencies to reduce duplication and minimize Federal regulatory controls where effective state regulatory programs are in place.

The Wetlands Plan protects the environment and reduces regulatory burdens on landowners. In 1995, out of 62,000 Clean Water Act, Section 404, permit applications that were evaluated, 83 percent were covered by general permits and took an average of only 17 days for processing. Only one-half of one percent were denied. The average evaluation time for all individuals who applied for a Section 404 permit in 1995 was 26 days. In the last four years, the Corps has reduced the evaluation time for permits by 21 percent, even though applications rose by 60 percent. The President's policies ensure that individual property rights and important aquatic resources are protected.

The FY 1997 Regulatory Program budget request is $112 million. The FY 1996 appropriation was $101 million. The proposed increase includes $6 million to implement fully the administrative appeals process. The process allows the public to challenge regulatory decisions without the need for expensive and time-consuming litigation. We will issue our final regulation this Spring and begin recruitment and training of appeals personnel. The additional personnel are necessary to handle the increased workload which will result from the process. The program will be

fully operational in early FY 1997. We estimate 100 permit denials will be appealed each year, chiefly for major, environmentally-sensitive projects. We believe that approximately 5,000 wetland jurisdiction determinations may also be appealed annually.

A major effort in FY 1997 will be to develop mechanisms for states to assume a greater role in wetlands regulation. This proposal requires an increase of approximately $2.5 million in the FY 1997 budget. This would be accomplished principally by the development of state programmatic permits which give states the responsibility for permit actions in certain areas. Once in place, programmatic permits should result in workload reductions for the Corps. Special Area Management Plans, a useful tool for the long-term management of a watershed, can facilitate the adoption of programmatic permits.

To complete these tasks, and maintain current levels of environmental protection and service to the public, we will maintain current manpower levels in the regulatory program and add about 50 appeals process personnel in the field offices. The FY 1997 budget includes $3 million for inflation and $6 million for the appeals system.

The Wetlands Certification Program, another aspect of the President's Plan, will be implemented this summer to certify non-Federal wetlands experts. This assures a nationwide pool of wetlands experts which will expedite and improve wetland determinations. Start-up costs will be about $500,000 in FY 1997 when district offices begin full operation of their local certification programs.

We are working on an expansion of our nationwide permit program which will reduce regulatory burdens on the public. It will also help alleviate the increased workload resulting from a 1993 Federal rule which makes regulation of excavation activities consistent across the country. This Spring, we plan to publish the new nationwide permits for public comment.

We will propose a major change to the regulatory fee system. Under this proposal, the fees for individual landowners would be eliminated, and the commercial fees would be increased to cover the costs of evaluating and processing the permits, using a sliding scale based on the complexity of the permits. If such fees are implemented in FY 1997, we expect to increase revenue by about $7 million that year and higher amounts in later years. These fees would be used as an offset to the regulatory budget. Currently, we collect less than half a million dollars annually in permit fees

ACTIVITIES UNDER THE FLOOD CONTROL AND COASTAL EMERGENCIES APPROPRIATION

The Corps of Engineers continues to provide leadership in response to natural disasters and, therefore, must maintain a preparedness program that meets the needs of the Nation. The FY 1997 request of $15 million for Flood Control and Coastal Emergencies provides for the basic requirements of this program.

The Corps responsibility for emergency response requires that engineering, construction, and emergency operations capabilities be maintained. Therefore, the level of funding must be sufficient to support an organization capable of responding to both natural and man-made disasters: hurricanes, floods, earthquakes, and other disasters such as contaminated public water supplies. The budgeted amount will allow response to life threatening situations and protection of critical infrastructure

necessary for public health and safety. This basic level of funding for FY 1997, as well as the workforce it supports, may be supplemented as necessary in the event of a major disaster.

Activities in this program include: the review and updating of response plans to maintain readiness; training to ensure our capability to respond under adverse circumstances; procurement and pre-positioning of critical equipment and supplies such as sandbags and pumps, which would not likely be available during initial stages of a response; periodic exercises to test and evaluate plans, personnel and adequacy of training; inspection of non-Federal flood control projects to ensure their viability to provide flood protection; laboratory support for field operations; and the overall management of the response program to ensure workable, coordinated efforts are undertaken in a timely manner.

In addition, work continues on comprehensive interagency response planning activities. They support the Federal Emergency Management Agency's (FEMA) Federal Response Plan for providing engineering and construction support following major disasters such as Hurricanes Andrew and Marilyn and the Northridge Earthquake. In support of FEMA's disaster response and recovery activities, our mission assignments have included: emergency debris removal; temporary housing; emergency water; restoration of infrastructure; construction management; and other support which utilizes Corps engineering, contracting, and construction expertise.

ACTIVITIES UNDER THE GENERAL EXPENSES APPROPRIATION

The FY 1997 request for the General Expenses (GE) account is $153 million, an increase of $1.5 million over the FY 1996 funded level of $151.5 million, less than 1 percent overall.

The General Expenses appropriation provides for the executive direction and management of the overall Civil Works program through the Office of the Chief of Engineers and the regional Major Subordinate Commands. The primary purpose of the General Expenses account is to provide definitive policy guidance, program management, coordination, and oversight for all Corps activities toward execution of a comprehensive Civil Works program.

The General Expenses account also funds the Coastal Engineering Research Board, which reviews and recommends coastal engineering research and development project priorities, the Humphreys Engineering Center Support Activity, which provides administrative support to the Corps headquarters as well as other Corps tenants at the Humphreys Engineer Center at Fort Belvoir; the Engineering Strategic Studies Center, which performs analytical support for the Civil Works mission; and the Water Resources Support Center, which provides a variety of water management functions such as conducting and managing national studies, special studies in support of the Civil Works mission, data collection and distribution, and technical support to other Corps offices in matters dealing with water resource management, also located at Fort Belvoir. These activities represent about 150 full-time equivalents (FTE) of the total GE staffing.

The Corps has continued its efforts to streamline executive functions in compliance with the Administration's National Performance Review and Reinventing Government Initiatives. In mid-FY 1994, the Assistant Secretary of the Army for Civil Works (ASA(CW)) directed the establishment of a Division Office Organizational Task Force and the Chief of Engineers initiated a Headquarters Organizations and Functions Task Force. Responding to changing missions and workload shifts, the purpose of both groups was to develop organizational guidelines to downsize and restructure these

organizations, to ensure continued future effective and efficient performance of the Civil Works program Significant outcomes included the elimination of technical review from headquarters and division offices, elimination of policy review at divisions, divestiture of all operating functions from both headquarters and division offices, and empowerment of district commanders. Policy review was consolidated at the headquarters, and district offices were empowered to perform technical review and operating functions. Division offices were downsized and structured to perform four primary missions: command and control, regional programs management, regional interface, and quality assurance.

The Division Office Organizational Task Force Report also recommended a more standardized staffing structure of approximately 104 full-time equivalent (FTE) workyears to provide oversight of both civil and military missions of their subordinate districts. The Task Force Report was approved by the Secretary of the Army in March 1995, and plans are to be fully executed by the end of FY 1996, saving approximately 138 Civil FTE over the two-year implementation period The ASA(CW) also proposed that division and district offices located in the same geographical area be consolidated and collocated where feasible to effect space and synergy savings from the collocation. The South Pacific Division is in the process of collocating with the San Francisco District, and collocation options for other divisions are being evaluated.

In addition to the restructuring currently underway, the Energy and Water Development Appropriations Act for 1996 (Public Law 104-46) directed the Secretary of the Army to submit a plan that would reduce the number of division offices from 11 to no fewer than six and no more than eight, with each division supervising at least four districts, but without changing the functions of the districts The Assistant Secretary of the Army (Civil Works) has proposed a plan that would reduce the number of divisions to eight, realign geographical boundaries along watersheds, and realign some districts among the remaining divisions. The division restructuring plan will be implemented and expensed during the last quarter of FY 1996 and FY 1997. The costs of office closure, personnel transfers, and other move associated costs will be funded with existing restructuring funds and estimated labor savings.

Consistent with the Administration's goals, the Corps has also focused attention on program execution and performance measurement. Program execution showed a marked improvement in FY 1995 over previous years in all major programs. In addition, in compliance with the Government Performance Results Act of 1993, the Corps is developing results-oriented performance measures. Initial measures have been defined and base levels will be established during FY 1996. Execution of the FY 1997 Civil Works program will be evaluated against these more explicit program goals expressed in terms of intended program outcomes and customer satisfaction.

The FY 1997 General Expenses budget of $153 million consists of approximately 72 percent labor, 22 percent fixed costs, such as rent, utilities, communications, information management, and other contractual services, and 6 percent discretionary costs, for travel, training, supplies and materials, and equipment. The budget reflects minimal inflation of 2.7 percent in nonlabor costs and includes the projected pay raise for FY 1997. Estimated costs are also included for separated or transferred employees. Extraordinary costs above normal inflation are included for two items: (1) deployment at five division offices of the Corps of Engineers Financial Management System (CEFMS), the Corps' new finance and accounting system that replaces the outdated Corps of Engineers Management Information System; and (2) additional rent costs for the Corps headquarters

in the Pulaski Building, Washington, D.C. CEFMS implementation costs include upgrading computer equipment and communication lines, electronic signature capability, training and associated travel, and additional document processing time. The additional rent costs are due to lease renegotiation and space realignment between Civil Works and Army programs as a result of a headquarters space survey, and additional space requirements to consolidate policy review in the headquarters building.

The proposed budget of $153 million will support the projected staffing level of 1,304 FTE in the current organizational structure, a reduction of 12 percent from the FY 1995 authorized FTE level of 1,485. The division offices will save 138 FTE from the FY 1995 staffing level; a 17 percent reduction in their staff over two years as a result of carrying out the current restructuring plan. Additional FTE savings will be generated upon implementation of the plan to reduce the number of division offices. Actual savings, however, will not be realized until FY 1998, since the labor savings will be required to offset the costs of restructuring during FY 1997. The remaining GE-funded activities have been reduced by 43 FTE, or 6.3 percent, in the same two-year period. The staffing reductions in the support activities and headquarters also exceed the reductions required by the Federal Workforce Restructuring Act, primarily due to regionalization of human resources and finance and accounting services. Results of the two division restructuring initiatives and the regionalization actions plus the Federal Workforce reductions through FY 1999 are expected to reduce the total executive direction and management staffing by about 19 percent from the FY 1995 level, and 32 percent below the FY 1989 level.

These executive direction and management activities, which provide oversight of the entire Civil Works mission, represent less than 5 percent of the total Civil workforce, with the headquarters staff of less than 500 FTE making up less than 2 percent of that total. When compared to other agencies, the Corps staffing level in the National Capital Region is the lowest by far, both in total strength and as a percentage of the total workforce.

ACTIVITIES UNDER THE REVOLVING FUND

The FY 1997 Plant Replacement and Improvement Program obligations under the Revolving fund for items designed to improve productivity, increase efficiency, modernize, and improve the Corps equipment and operational capabilities, and increase safety are estimated at $90 million. This figure includes estimated FY 1997 expenditures of $20 million for 12 new major items: $.5 million for a fuel oil barge in the Vicksburg District; $1.4 million for a replacement towboat in the St Louis District ; $.5 million for a replacement tugboat in the Philadelphia District; $9.3 million for a crane barge, two tenders and a work barge in the Rock Island District; $3.1 million to outfit the new Corps Finance Center located near Memphis; $.9 million for a hazardous waste research center at the Waterways Experiment Station; $2 million for a Corpswide document imaging system; $1.3 million for development of Corpswide water control systems software; and $1 million for development of Corpswide operations and maintenance business information link software. Also included are expenditure estimates of $33 million for the acquisition of continuing major items and $37 million for the design, rehabilitation, construction, acquisition, additions and improvements of miscellaneous items of plant and equipment with unit costs less than $700 thousand.

AUTOMATION

The Corps has again included an estimate of automation costs. Costs are displayed under three categories, hardware acquisition, software or automated systems, and automation personnel. Total hardware acquisition costs for FY 1997 are estimated at $58.8 million. $10.4 million of these costs are included in the FY 1997 Revolving Fund Plant Replacement and Improvement Program (PRIP) request. The remainder will be paid for using the General Expenses appropriation funds, district or laboratory overhead accounts, or funds provided for specific Civil Works studies, projects or programs. Total automated information systems costs for FY 1997 are estimated at $27.6 million. This total includes $4.3 million in personnel costs. Total estimated automation personnel costs for FY 1997, excluding the $4.3 included under automated information systems, are $14.9 million. The Corps continues to improve the tools it uses to develop these estimates and to measure actual expenditures. This will increase the accuracy of the data in future submissions and facilitate Corps management of automation resources.

SUPPORT FOR OTHERS

In FY 1997, the Corps estimates support will be provided to over 30 various Federal Agencies. The estimated dollar value of the Corps efforts and the resulting construction could total $700 million. The actual program size will depend on various factors: requesting agency's appropriation which often is not known until the first quarter of the fiscal year, final agency decisions made on how these appropriated funds will be dispersed for projects, and the magnitude of national emergencies.

ACTIVITIES UNDER OIL SPILL RESEARCH

The FY 1997 budget request of $850 thousand for funds for oil spill research under Title VII of the Oil Pollution Act of 1990 authorizes use of the Oil Spill Liability Trust Fund to perform oil pollution research. The request would provide funds to continue research on the development and application of airborne sensor systems that can provide location, areal coverage, thickness, and the type and condition of oil in real-time. This remotely sensed oil spill data would be used in an integrated clean up response Command and Control System to display and guide the clean up equipment to the most critical areas of the spill and to environmentally sensitive areas. Coordination and cooperation with other key oil spill agencies to include the Department of Energy, the US Coast Guard, and EPA have been established to assure cross-utilization and focused research efforts to meet the most pressing needs of oil spills in the water or on the shore for inland and coastal areas of our nation by all responsible agents.

CONCLUSION

This concludes the detailed statement of Major General Stanley G. Genega on Remaining Items of the Fiscal Year 1997 Civil Works Budget.

U. S. ARMY CORPS OF ENGINEERS
CIVIL WORKS PROGRAM

CONGRESSIONAL SUBMISSION
FISCAL YEAR 1997

REMAINING ITEMS

Budgetary information will not be released outside the Department of the Army until 18 March 1996.

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

REMAINING ITEMS

Table of Contents

APPROPRIATION TITLE:	Page No.
A. General Investigations	1
1. Surveys	
c. Special Studies	
(1) National Dredging Needs Study of Ports and Harbors	2
e. Cooperation with Other Federal Agencies, States, and Non-Federal Interests	
(1) Cooperation with Other Water Resources Agencies	4
(2) Planning Assistance to States	4
(3) Special Investigations	5
(4) Gulf of Mexico Program	5
(5) Interagency Water Resources Development	6
(6) National Estuary Program	6
(7) North American Waterfowl Management Plan	7
2. Collection and Study of Basic Data	
a. Flood Plain Management Services	8

1927

18 MAR 1996

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

APPROPRIATION TITLE: Page No.

A. General Investigations (Continued)

2. Collection and Study of Basic Data (Continued)

c. Other Programs

(1) Stream Gaging (U.S. Geological Survey) 10
(2) Precipitation Studies (National Weather Service) 12
(3) International Waters Studies 15
(4) Hydrologic Studies 19
(5) Scientific and Technical Information Centers 25
(6) Coastal Field Data Collection 29
(7) Transportation Systems 34
(8) Remote Sensing Systems Support 37
(9) Flood Damage Data Program 40
(10) Automated Information Systems Support 41

3. Research and Development 45

a. Materials/Structural Engineering 50
b. Coastal Navigation and Storm Damage Reduction 56
c. Flood Control and Navigation 61
d. Environmental Quality 69
e. Water Resources Management 73
f. Surveying and Remote Sensing 78
g. Risk Analysis for Water Resources Investments 81

4. Earthquake Engineering 84

5. Zebra Mussel Control Research Program 88

6. Characterization and Restoration of Wetlands Research 92

1928

18 MAR 1996

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

APPROPRIATION TITLE:	Page No.
B. Construction, General	95
2. Navigation Projects	
a. Channels and Harbors	
(II) Projects Not Specifically Authorized by Congress (Sec. 107, P.L. 86-645, as amended)	97
(III) Mitigation of Shore Damages Attributable to Navigation Projects (Sec. 111, P.L. 90-483, as amended)	97
c. Inland Waterways Users Board (Sec. 302, P.L. 99-662)	98
4. Beach Erosion Control Projects	
b. Projects Not Specifically Authorized by Congress (Sec. 103, P.L. 86-874, as amended)	98
5. Flood Control Projects	
a. Local Protection	
(II) Projects Not Specifically Authorized by Congress (Sec. 205, P.L. 80-858, as amended)	99
(III) Emergency Streambank and Shoreline Protection (Sec. 14, P.L. 79-526, as amended)	99
(IV) Snagging and Clearing (Sec. 208, P.L. 83-780, as amended)	99

1929

18 MAR 1996

c

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

APPROPRIATION TITLE: Page No.

B. Construction, General (Continued)

6. Dam Safety Assurance Program 100

10. Project Modifications for Improvement of the Environment (Sec. 1135, P.L. 99-662) 101

12. Aquatic Plant Control Program 102

13. Beneficial Uses of Dredged Material (Sec. 204, P.L. 102-580) 104

14. Employees Compensation (Payments to Department of Labor) 105

C. Operation and Maintenance, General 106

1. Navigation

a. Channels and Harbors

(1) Coastal Inlets Research Program 107
(2) Dredging Operations and Environmental Research (DOER) 109
(3) Monitoring of Coastal Navigation Projects 111

b. Locks and Dams

(1) Repair, Evaluation, Maintenance, and Rehabilitation Research (REMR II) 114
(2) River Confluence Ice Program 118

1 8 MAR 1996

1930

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

APPROPRIATION TITLE:	Page No.
C. Operation and Maintenance, General (Continued)	
2. Flood Control	
a. Reservoirs	
(1) National Dam Safety Program	120
(2) Cultural Resources	121
(3) Peer Review Program	123
4. Protection of Navigation	124
5. National Emergency Preparedness Program (NEPP)	127
6. Project Operations Support Program	130
a. Operations Technical Support (OTS)	130
b. Earthquake Hazards Program for Buildings and Lifelines	132
c. Mississippi River Basin Mainstem Model Development	133
d. Reliability Models Program for Major Rehabilitation	135
D. Regulatory Program	136
E. Flood Control and Coastal Emergencies	139
F. General Expenses	142
G. Revolving Fund - Plant Replacement and Improvement Program (PRIP)	148
H. Oil Spill Research	167

1931

18 MAR 1996

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

OTHER SUPPORTING INFORMATION:	Page No.
I. Support for Others	170
J. Automation Costs	172
SUMMARY OF BUDGET REQUEST FOR INLAND WATERWAYS TRUST FUND PROJECTS	184
SUMMARY OF ALL APPROPRIATIONS	186

1932

18 MAR 1996

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

SUMMARY OF REMAINING ITEMS

GENERAL INVESTIGATIONS

	FY 1996 Allocation	FY 1997 Request	Increase (Decrease)
1. Surveys			
c. Special Studies	334,000	575,000	241,000
e. Cooperation with Other Federal Agencies, States, and Non-Federal Interests	5,809,000	8,540,000	2,731,000
2. Collection and Study of Basic Data			
a. Flood Plain Management Services	6,374,000	10,000,000	3,626,000
c. Other Programs			
(1) Stream Gaging (U.S. Geological Survey)	571,000	770,000	199,000
(2) Precipitation Studies (National Weather Service)	296,000	500,000	204,000
(3) International Waters Studies	371,000	300,000	(71,000)
(4) Hydrologic Studies	519,000	500,000	(19,000)
(5) Scientific and Technical Information Centers	130,000	150,000	20,000
(6) Coastal Field Data Collection	2,668,000	1,500,000	(1,168,000)
(7) Transportation Systems	704,000	950,000	246,000
(8) Remote Sensing/Geographic Information System Support	222,000	300,000	78,000
(9) Flood Damage Data	0	250,000	250,000
(10) Automated Information Systems Support	1,927,000	650,000	(1,277,000)
3. Research and Development	17,589,000	21,500,000	3,911,000
4. Earthquake Engineering Research	1,482,000	2,000,000	518,000
5. Zebra Mussel Control Strategies for Public Facilities	741,000	1,500,000	759,000
6. Characterization and Restoration of Wetlands Research	1,112,000	2,000,000	888,000
	==========	==========	==========
Totals	40,849,000	51,985,000	11,136,000

1933

1 8 MAR 1996

APPROPRIATION TITLE: General Investigations, FY 1997

1. SURVEYS - CONTINUING

c. Special Studies

Study	Total Estimated Federal Cost	Allocation Prior to FY 1996	Allocation FY 1996	Tentative Allocation FY 1997	Additional to Complete After FY 1997
(1) National Dredging Needs Study of Ports and Harbors					
	$2,500,000	$1,591,000	$334,000	$575,000	$0

This study is a macro level assessment of national port and harbor dredging needs and would include but not be limited to: 1) an analysis of existing and projected future project depths for national ports and harbors; 2) an examination of the types and sizes of ships in use under existing and future conditions; 3) an analysis of existing and projected world trade patterns; 4) an assessment of the future national waterside infrastructure needs; and 5) a comparison of depths of the United States and selected world ports.

The study responds to Section 402 of the Water Resources Development Act of 1992 which authorizes the conduct of such studies as necessary to provide a report to congress which assesses the dredging needs of the national ports and harbors of the United States. The national ports and harbors are crucial links in an internodal transportation chain which is recognized as a critical element to the U.S. national strategy. They have had to evolve, shift and change to stay abreast of global economic changes, emerging traffic lanes and new market opportunities. The infrastructure investment that is necessary to service the maritime industry is capital intensive. Ports and harbors exist to service an industry which is struggling and rapidly changing to respond to ever increasing customer demands. Technological enhancements in the shipping industry continue to encourage port specialization and cargo concentration for selected commodities. The trend toward consolidation of shipping lines through business coalition, joint ventures, and mergers can mean added business at some ports and a loss for others. The national ports and harbors have high expectations of increased future international trade which some sources are projecting may triple by 2020. With ecological concerns over port expansion and dredge material disposal increasing, and financial budgetary constraints expanding, a current national assessment of dredging needs could form the basis for a national prioritization for investment strategy towards channel maintenance and improvements for existing and new ports and harbors to maintain/increase U.S. competitiveness in the world market.

18 MAR 1996

1934

APPROPRIATION TITLE: General Investigations, FY 1997

1. SURVEYS - CONTINUING

c. Special Studies

(1) National Dredging Study of Ports and Harbors (Continued)

ACCOMPLISHMENTS: In FY 1994, the effort focused on review of previous national studies; creation of a comprehensive database of existing vessels, commodity flows and port facilities/infrastructure; catalogue of existing and proposed channel depths for selected world ports; and preliminary estimates of projected world trade patterns. In FY 1995, recent R&D studies were reviewed; the database was expanded to include additional information on port facilities, channel dimensions, vessel characteristics and routings, and commodity origins and destinations; analytical procedures to measure dredging needs were developed; a preliminary prioritization of ports within a national system was developed; and a comparative analysis of selected world ports and U.S. ports was conducted. During FY 1996, the database will be updated with an additional years worth of data, current dredging needs of the national ports and harbors will be assessed and preliminary analysis of future dredging needs will be initiated.

JUSTIFICATION: The funds requested for FY 1997 would be used to complete analysis of shipping trends and port capacities, complete analysis of port waterside infrastructure constraints, finalize future conditions of U.S. port channels, finalize current and future demand for dredging, continue ongoing coordination efforts with other agencies and the port community, and prepare a draft and final report documenting study efforts and results.

1935

18 MAR 1996

APPROPRIATION TITLE: General Investigations, FY 1997

1. SURVEYS

e. Cooperation with Other Federal Agencies, States, and Non-Federal Interests

Allocation For FY 1996 $5,809,000 Tentative Allocation FY 1997 $8,540,000

The $5,809,000 is requested for Corps of Engineers activities required for cooperation with other agencies, involved in water resources activities which are primarily the responsibility of those interests. The activities are as follows:

(1) The amount of $480,000 is requested to continue Cooperation With Other Water Resources Agencies. Cooperation with the Department of Agriculture (USDA) is under the Watershed Protection and Flood Prevention Act of 1954 (Section 5 of PL 566-83), as amended; the Flood Control Act of December 22, 1944 (Section 1 of PL 534-78), as amended; and the National Environmental Policy Act of 1969 (PL 91-190). Executive Order No. 10913, dated 18 January 1961, requires that cognizance be taken of constructed and contemplated upstream and downstream USDA works, and that plans be submitted to the Secretary of the Army for review and comment prior to their transmission to the Congress through the President. As the agency responsible for the flood control features of basin program, the Corps of Engineers must provide the Department of Agriculture with information on proposed Corps projects, including their effect on contemplated watershed programs. The Corps is also required by Section 102 (2)(c) of the National Environmental Policy Act of 1969 to review the environmental impacts which would result from installation of USDA project features. Cooperation with the Bureau of Reclamation of the Department of the Interior includes preparation of estimates of flood control requirements, and benefits, and reservoir operating criteria for storage reservoirs to be constructed with Federal funds, in accordance with Sections 1 and 7 of PL 534-78 and Section 7 of PL 984-84, as amended. Studies made by the Bureau of Reclamation of the flood control features of proposed reclamation projects are submitted to the Corps of Engineers for review and determination of the flood control benefits. The Corps of Engineers uses the data collected by the Bureau but makes an independent evaluation of the project. The report of the Chief of Engineers is used by the Secretary of the Interior in making allocation of project cost to flood control. Corps representation is required for cooperation with Federal and state agencies such as River Basin Compact Commissions; Interstate River Basin Compacts; and Regional Planning Commissions in authorized, but unfunded investigations.

(2) The amount of $3,000,000 is requested for cooperation with any State and Indian Tribe as specified in Section 22 of PL 93-251, as amended, in preparation of comprehensive plans for development, utilization, and conservation of water and related resources. Studies undertaken are 50/50 cost shared with the state or Indian Tribe. Since cost sharing was implemented in FY 91 a total of 296 agreements have been executed with 47 states and 16 Indian tribes. Indian tribes were included in FY 93 and the interest is growing rapidly. Even with the cost sharing, there continues to be significant increasing demand for services under this Program. Of the $3,000,000 requested,

1986

18 MAR 1996

APPROPRIATION TITLE: General Investigations, FY 1997

1. SURVEYS

e. Cooperation with Other Federal Agencies, States, and Non-Federal Interests (Continued)

$2,500,000 is needed to meet growing state requests and $500,000 will be used to cooperate with Native American tribes in addressing the water and related resources of Indian lands. Study scopes and cost-sharing agreements have been negotiated for a significant number of studies for States, communities, and Indian tribes. The $3,000,000 will allow the Corps to initiate and complete studies which the sponsors have identified as having highest priority.

(3) The amount of $3,400,000 is requested for special investigations. Of this amount, $300,000 provides for; the review of preliminary permit and licenses applications for non-Federal hydroelectric power development either at or affecting Corps water resource projects. The amount of $3,100,000 provides for (1) special investigations and reports of nominal scope prepared pursuant to Congressional and other requests from outside the Corps of Engineers for information relative to projects or activities which have no funds; (2) similar work of detailed scope, as specifically authorized by the Chief of Engineers; and (3) review of reports and environmental impact statements of other agencies. Among the investigations paid for from these funds are reconnaissance investigations of flooding potential and flood damages, drainage, harbor improvements, anchorages, and development of navigation channels.

(4) Gulf of Mexico Program. The amount of $300,000 is requested to continue activities initiated under Special Investigations. The Gulf of Mexico Program (GMP) is an interagency program, initiated by the U.S. Environmental Protection Agency, for the protection and restoration of the natural resources of the Gulf of Mexico. These natural resources have tremendous environmental and economic significance to the Gulf states and to the Nation. With the funds requested, the Southwestern, Lower Mississippi Valley, and South Atlantic major subordinate commands and their districts will be able to fully participate in development of GMP "Action Plans," attend GMP meetings and conferences, and provide technical support requested by other agency participants. The GMP participants are now concentrating on development of the Action Plans to address: Habitat Degradation; Marine Debris; Coastal Erosion; Toxic Substances and Pesticides; Public Health; Nutrient Enrichment; Living Aquatic Resources; Freshwater Inflow; Information Transfer; and Public Education and Outreach. Many of these Action Plans affect Corps authorized missions in the Gulf of Mexico. It is very important for Corps representatives to be active members of the GMP Policy, Management, and Technical Committees and other working groups.

APPROPRIATION TITLE: General Investigations, FY 1997

1. SURVEYS

e. Cooperation with Other Federal Agencies, States, and Non-Federal interests (Continued)

(5) The amount of $1,000,000 is requested for Interagency Water Resources Development. These are Corps of Engineers district activities, not otherwise funded, that require coordination effort with non-Federal interests. These activities include items such as meeting with City, County and State officials to help them solve water resources problems when they have sought advice or to determine whether or not Corps programs are available and should be used to address the problems. The funds would also be used to cover costs of meeting with potential study sponsors prior to budgeting for a study to insure they fully understand study cost sharing and to obtain an indication of their interest in participating in a future study.

(6) The amount of $180,000 is requested to participate with Federal and State agencies in the National Estuary Program (NEP) administered by the Environmental Protection Agency under the Water Quality Act of 1987 (Section 320 of PL 100-4). The NEP is an interagency planning program to develop management plans for nationally significant estuaries designated by the EPA. To date, the following 26 estuaries have been designated under the program: Puget Sound, WA; Delaware Bay, DE: and Delaware Inland Bays, DE; New York/New Jersey Harbor, NY-NJ; Sarasota Bay, FL; Santa Monica Bay, CA; San Francisco Bay, CA; Galveston Bay, TX; Albermarle/Pamlico Sound, NC; Buzzards Bay, MA; Narragansett Bay, RI; and Long Island Sound, CT-NY; NY; Massachusetts Bay, MA; Barataria/Terrebonne Bays, LA; Indian River Lagoon, FL; Casco Bay, ME; Tampa Bay, FL; San Juan Bay, PR; Corpus Christi Bay, TX; Tillamook Bay, OR; and Peconic Bay, NY. Because of extensive Corps involvement with Federal water resources projects in the nation's estuaries and other responsibilities in waters of the U.S., the Corps has been asked to participate on the management and technical advisory committees of those NEP estuaries being studied. The requested funds would be used to cover costs of Corps field office meeting attendance, field reconnaissance, and data transfer. Because of similar objectives, these funds could be used for similar coordination activities conducted under the Coastal America initiative.

1938

18 MAR 1996

APPROPRIATION TITLE: General Investigations, FY 1997

1. SURVEYS

e. Cooperation with Other Federal Agencies, States, and Non-Federal interests (Continued)

(7) The amount of $180,000 is requested to continue cooperation with Federal and State agencies, and non-Federal interests in support of the North American Waterfowl Management Plan (NAWMP) administered by the Department of the Interior, Fish and Wildlife Service. The NAWMP is an international program designed to reverse downward trends in North America's waterfowl populations by protecting and improving waterfowl habitats nationwide, particularly in 34 areas within the United States identified as being critical to meeting NAWMP goals and objectives. Department of the Army support to the NAWMP is set forth in an agreement signed with the Department of the Interior on January 23, 1989. The Corps of Engineers has broad water resources development responsibilities and authorities and has stewardship responsibilities for over seven million acres of water and land. Many Corps of Engineers projects contribute directly or indirectly to the habitat base for the nation's waterfowl, and other wetland species. Current and future Corps of Engineer projects are expected to play an even greater role, particularly during years of low rainfall. Also, the Corps of Engineers has recognized extensive environmental engineering and technical expertise and experience that can contribute greatly towards meeting the NAWMP waterfowl habitat improvement goals and objectives. The requested funds would be used to cover costs of Corps of Engineers field office participation in field trips, interagency coordination meetings, and information transfer in response to conditions set forth in the agreement between the Department of the Interior and the Department of the Army. Because of similar objectives, these funds could also be used for similar coordination activities conducted under the Coastal America initiative.

APPROPRIATION TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

a. Flood Plain Management Services

SCOPE: This Corps of Engineers program stems from Section 206 of the 1960 Flood Control Act (PL 86-645), as amended, which authorizes the Secretary of the Army to compile and disseminate data on floods and flood damage potential and to provide guidance in their use in flood-related planning to State and local agencies. This information and guidance supports planning and implementing actions which reduce the flood hazard through wise use of flood plains. The Flood Plain Management Services Program provides flood hazard information, interpretation, and guidance for sites or short reaches of stream or coast and technical and planning assistance to states, communities and Indian Tribes; develops and disseminates guides and pamphlets to convey the nature of flood hazards and to foster public understanding of the options for dealing with flood hazards; and participates with the Federal Emergency Management Agency and local governments in the conduct of pre-disaster hurricane evacuation and preparedness studies for mobilizing local community responsiveness to natural disasters in high-hazard coastal areas.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 1997-01) Program Cost	$53,000,000
Tentative Allocation for FY 1997	10,000,000
Balance to Complete Five-Year Program after FY 1997	43,000,000
Allocation For FY 1996	6,374,000
Increase of FY 1997 from FY 1996	+3,626,000
Average Annual Allocation for FY 1992-96	7,726,000

JUSTIFICATION: The funds requested for FY 1997 are to address the growing number of requests from states, regional and local governments, Indian Tribes, and other non-Federal public agencies. The increase of $3,626,000 over the FY 1996 request will allow for increased technical services to assisting Federally recognized Indian tribes with flood plain managements on Indian land; for aiding states and local communities to become more involved in the application of flood plain management measures by providing the increased site specific flood and flood plain data and assistance needed for working with community planners, associations, groups, and individuals; for increased efforts to identify flood hazards in smaller communities under growth pressures; for increased special studies that concentrate on the mitigation of future flood damages and give increased emphasis to the application of non-structural measures; and for expediting critical ongoing pre-disaster hurricane evacuation and preparedness studies for states and counties along the Atlantic Ocean and the Gulf of Mexico.

APPROPRIATION TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

a. Flood Plain Management Services (Continued)

ACCOMPLISHMENTS: Responses to requests from Federal and non-Federal agencies, communities, Indian Tribes and individuals for flood-related information, interpretation, and guidance numbered 52,000 during 1995 and involved property valued at $6 billion. The Corps participated in pre-disaster hurricane evacuation and preparedness studies for high-hazard areas in Louisiana, Massachusetts, Rhode Island, Florida, Connecticut, North Carolina, New Jersy, New York, Puerto Rico and the Virgin Islands; provided support for updating and improving mathematical models of flood plain hydrology and hydraulics; developed training programs in flood plain hydrology and hydraulics; and prepared flood-proofing studies.

APPROPRIATIONS TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other programs

(1) Stream Gaging (U.S. Geological Survey)

SCOPE: The Corps of Engineers cooperates with the U.S. Geological Survey in this effort, and contributes funds for all or part of the cost of the operation and maintenance of about 2,400 stations that are of special importance to the Corps mission. The Corps established this continuing, cooperative program in March 1928, so that streamflow data would be available to meet special needs concerning the Corps water resources responsibilities.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 1997-2001) Program Cost	$4,260,000
Tentative Allocation for FY 1997	770,000
Balance to Complete Five-Year Program after FY 1997	$3,490,000
Allocation for FY 1996	571,000
Increase of FY 1997 from FY 1996	199,000
Average Annual Allocation for FY 1992-1996	638,000

JUSTIFICATION: The Corps of Engineers makes extensive use of streamflow records in the planning, design, construction, and operation of water resources projects. The Basic network of stream gaging stations operated by the Geological Survey under its normal functions is inadequate to meet all the special needs of the Corps water resource development responsibilities. Accordingly, a cooperative program was established under which funds are transferred to the Survey to cover, partially, the cost of operating specific stations. In the optimum development of water resources, it is essential that

2. Collection and Study of Basic Data

c. Other programs

(1) Stream Gaging (U.S. Geological Survey) (continued)

continuous records of streamflow be maintained at specific sites over a long period of years to provide a reliable measure of water resources available for various uses. This budget item covers only the non-project portion of the cooperative program. To continue the operation of stations of special interest to the Corps, an estimated total of $17,400,000 will be required by the U.S. Geological Survey during Fy 1997, exclusive of funds receivsd from other cooperative sources. The operation and maintenance cost of these stations will be financed from three sources, as follows: (1) $620,000 appropriated directly to the U.S. Geological Survey for special Corps stations; (2) $770,000 from this budget item for stations not directly attributed to the Corps projects; and (3) $16,010,000 from Corps funds budgeted elsewhere for authorized projects and studies. The basic program will remain at essentially the same level as in previous years.

ACCOMPLISHMENTS: Records for the streamflow stations supported by transfer of funds are not only used by the Corps, but the data are used by the National Weather Service as the basis for many public flood forecasts. In addition, the data are published in a regular series of reports by the Geological Survey and provide valuable information for other Federal and state agencies and the public.

COORDINATION: This program is fully coordinated with the U.S. Geological Survey. Costs for conducting the work are compiled by representatives of the Survey to identify a basis for the transfer of funds to that agency.

1943

18 MAR 1996

APPROPRIATION TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other Programs

(2) Precipitation Studies (National Weather Service)

SCOPE: This is the Hydrometeorological Studies Program conducted for the Corps of Engineers by the National Weather Service (NWS). The NWS performs analyses of storm rainfall and other meteorological data required to develop hydrologic criteria for use by the Corps in planning, design and water control management of flood control and water resources development projects, and in floodplain management studies. The Corps transfers funds to the NWS to pay for the work.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 1997-2001) Program Cost	$ 2,750,000
Tentative Allocation Requested for FY 1997	500,000
Balance to Complete Five-Year Program after FY 1997	2,250,000
Allocation for FY 1996	296,000
Change in FY 1997 over FY 1996	204,000
Average Annual Allocation for FY 1992-1996	429,000

JUSTIFICATION: The scientific services provided by the National Weather Service under this program consist of: (1)review of the meteorological aspects of storm data compiled under the Hydrologic Studies Program conducted by the Corps; (2)development of probable maximum precipitation estimates and return frequencies of storms for large regions and for specific river basins; (3)development of meteorological parameters pertaining to hurricanes, northeasters and other wind phenomena; and (4)other studies necessary to accomplish the Corps mission.

APPROPRIATION TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other Programs

(2) Precipitation Studies (National Weather Service) (continued)

Funds in the amount of $500,000 will be required in FY 1997 to continue the program at a level consistent with Corps needs. The entire cost of the hydrometeorological studies program is funded under this budget item.

ACCOMPLISHMENTS: The Hydrometeorological Branch of the National Weather Service (NWS) has completed a major revision of the Probable Maximum Precipitation (PMP) study for the Northwestern States. A report of results was published in FY 1995 as Hydrometeorological Report No. 57 (HMR 57). A study of precipitation frequency for the southwestern part of the United States, which began in FY 1991, will continue into FY 1996. Isohyetal maps for 1- and 24-hour duration rainfall amounts were drafted and are under review. In conjunction with planning and design of the Santa Ana River and the American River projects, a cost-saving decision was made to update a 1966 report (HMR 36) on PMP for the entire state of California. Under this effort, all-season isohyetal maps were prepared in FY 1995; seasonal maps will be prepared in FY 1996. As another cost saving effort, the Corps continued to support the NWS in development and application of computer models for hydrometeorological analysis. This allowed the California PMP studies to be expedited by reducing storm data processing time from a year to a one- to two-month period. Work began in FY 1995 on a 3-year study of precipitation-frequency for the Hawaiian Islands. Also, during FY 1995, a study of relationships between antecedent and storm precipitation over Kansas, Oklahoma, and eastern Colorado was completed and published as NOAA Technical Memorandum NWS HYDRO 45. It is anticipated that during FY 1996 work will be completed and a report will be published on a study of the orographic relations around the Big Horn Mountains of Wyoming and Montana.

1945

18 MAR 1996

APPROPRIATION TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other Programs

(2) Precipitation Studies (National Weather Service) (continued)

FISCAL YEAR 1997: The major effort in FY 1997 will be to continue work on revision of the Precipitation-Frequency Atlas for the United States, particularly for the Southwest. Another major task for this period will be publication of the revision of Hydrometeorologic Report 36 (HMR 36) for California, which will be retitled as HMR 58. NWS will maintain capability to do site specific work for PMP analyses for projects throughout the United States. An example is the scheduled development of Standard Project Storm data for the Hawaiian Islands urban flood control studies. The Corps will continue to support NWS's effort to build computer capability for automated processing of storm data, in order to shorten the time of analysis and reduce cost.

COORDINATION: This program is fully coordinated with the National Weather Service, Office of Hydrology.

1946

18 MAR 1996

APPROPRIATION TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other Programs

(3) International Waters Studies

SCOPE: The Boundary Waters Treaty of 1909, the Niagara River Treaty of 1950, the Columbia River Treaty of 1961, and other less formal agreements between the Governments of the United States and Canada are concerned with the regulation, control, and use of boundary waters. Under the Boundary Waters Treaty of 1909, the International Joint Commission (IJC) was established and empowered to establish local boards, which conduct investigations and assure adherence to orders of approval pertaining to use of boundary waters issued by the Commission. Corps of Engineers representatives serve on the following IJC Boards: Saint Croix River, Champlain-Richelieu, Lake Champlain, St. Lawrence River, Niagara, Lake Superior, Lake of the Woods, Rainy Lake, Souris-Red Rivers Engineering, Souris River Control, Kootenay Lake, and Osoyoos Lake. Under separate treaties, Corps representatives serve on the Columbia River Treaty Permanent Engineering Board, the Columbia River Treaty Entities, the International Niagara Committee, and the International Lake Memphremagog Board. These Boards and Committees hold joint meetings, review report drafts and correspondence, make field inspections, obtain, collect, and analyze hydrologic and hydraulic data, and report their findings to the establishing parties. The degree of study activity varies depending upon the requirements of the Commission or Treaty under which they were established. These efforts assure better control, use, and orderly development of the jointly-controlled water resources, and are of importance in attempting to meet water demands resulting from an expanding economy along the United States-Canadian border. Studies are closely related to the Corps of Engineers' Civil Works program and are summarized in the Assistant Secretary of the Army for Civil Works Annual Report.

1947

18 MAR 1996

APPROPRIATION TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other Programs

(3) International Waters Studies (continued)

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 1997-01) Program Cost	$1,500,000
Tentative Allocation for FY 1997	300,000
Balance to Complete Five-Year Program after FY 1997	1,200,000
Allocation for FY 1996	371,000
Change in FY 1997 from FY 1996(decrease)	(71,000)
Average Annual allocations for FY 1992-96	669,000

JUSTIFICATION: The $300,000 requested for FY 1997 will fund a reduced level of Corps of Engineers participation in assisting the U.S. Government meet its obligations under provisions of boundary water treaties and other international agreements between the United States and Canada. On 1 August 1986, the two Governments sent the IJC a reference (request for study) on the fluctuating Great Lakes water levels, requesting a full evaluation of the effects of a range of high and low water conditions in the Great Lakes Basin, and joint recommendations on how to mitigate/alleviate them. The IJC established a Lake Levels Reference Study Board; the Corps North Central Division (CENCD) was the lead U.S. Federal agency for the study. The Board submitted its report to the IJC in 1993, recommending follow-up actions. The IJC forwarded the Board's report to the Governments in FY 1994 and notified them of its intent to further examine the recommendations. Follow-up activities by the Lake Superior and St. Lawrence River Boards of Control are anticipated in FY 97. CENCD provides support for implementation of the Niagara Treaty of 1950 which governs the split of Niagara River Waters between the U. S. and Canada and

18 MAR 1996

2. Collection and Study of Basic Data

c. Other Programs

(3) International Waters Studies (continued)

between the uses of the waters. The Treaty may be terminated by either the U. S. or Canada beginning in the year 2000 with a one year notice. Present and planned modifications have created new demands for Niagara River waters. During FY 1997, investigations into protecting the security of U. S. interests, providing the continued beneficial use of Niagara River waters, and developing the U. S. position for renegotiating the Treaty will continue. The investigations will involve several Federal and state agencies and be coordinated with the Niagara Board of Control. The reconnaissance phase will build upon and follow procedures similar to the those of the IJC's Levels Reference Study, but it will not be an international effort at this point. North Pacific Division engages in activities associated with implementation of the Columbia River Treaty and the Kootenay lake and Osoyoos Lake Boards of Control. CENPD, together with Bonneville Power Administration and British Columbia Hydro annually develop the Assured Operating Plan and the Detailed Operating Plan for the treaty storage projects. Funds also are used to support the work of the Columbia River Treaty Permanent Engineering Board, including publication of its annual report to the Governments. New England Division (CENED) engages in support of the Saint Croix River Board of Control and the Gulf of Maine Council on the Marine Environment. Work in the Saint Croix R. Basin involves retrieval and analysis of water data to assure compliance with IJC rules and annual inspection of dams and fish passage facilities. CENED is currently engaged in a water control management study of Spednik and East Grand lakes.

1949

18 MAR 1996

APPROPRIATION TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other Programs

(3) International Waters Studies (continued)

ACCOMPLISHMENTS: IJC Levels Reference Study - Phase II of the study was completed in March 1993. IJC report to the Governments was submitted in December 1993. Annual report of the Columbia River Treaty Permanent Engineering Board for 1994 was sent to the Governments in February 1995.

FISCAL YEAR 1997: CENCD follow-up efforts to the Levels Reference Study will include data collection and analysis, testing of potential alternative Lake Ontario regulation and examining potential impacts of global climate change on Lake Superior and Lake Ontario regulation, and assisting the IJC in developing and evaluating new regulation criteria. Additional flow data will be obtained and used to update the rating curve used to verify compliance with Niagara Treaty requirements. New data will be used to enhance the unsteady flow model of the Upper Niagara and an ice jam model will be applied to examine measures to reduce flooding. The performance of a new plan for regulating Lake Superior outflows will be used to optimize water resources use and a water supply process model will be evaluated for application in regulation decisions. The investigation into modifying the Niagara Treaty of 1950 will build upon and use the Reference Study analysis techniques. Special studies related to (1) allocation of flood control space in Columbia River Treaty storage projects and (2) international impacts of evaluation of endangered species compliance will be conducted by CENPD. CENED will continue normal work in support of the Saint Croix Board of Control and the Gulf of Maine Council on the Marine Environment.

1950

18 MAR 1996

23-577 96-62

APPROPRIATION TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other Programs

(4) Hydrologic Studies

SCOPE: The scope of activities under this item is determined annually based on the requests from USACE Commands and Laboratories to meet high-priority needs. These items are not covered under regular Civil Works GI and O&M funding programs. Major activities to be undertaken in the program generally include the collection of basic hydrologic data and the studies of these data for major storm events or certain special hydrologic processes. The information to be derived from this program will improve hydrologic engineering techniques for the planning, design, construction, and operation of water resources projects. The program consists of four sub-items: Storm Studies, General Hydrologic Studies, Sedimentation Studies, and Streamflow and Rainfall Data.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 1997-2001) Program Cost	$ 4,000,000
Tentative Allocation Requested for FY 1997	500,000
Balance to Complete Five-Year Program after FY 1997	3,500,000
Allocation for FY 1996	519,000
Decrease of FY 1997 from FY 1996	19,000
Average Annual Allocation for FY 1992-1996	523,800

APPROPRIATION TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other Programs

(4) Hydrologic Studies (continued)

JUSTIFICATION:

1. Storm Studies: The Storm Studies Program is a continuing investigation of major storms for the purpose of accumulating comprehensive rainfall data. These data are used to refine the regional hydrometeorological information throughout the nation. The up-to-date hydrometeorological information is essential for design of new projects as well as for safety assessment of existing projects. We have substantial need for hydrologic data for initiation and completion of water resources studies. These data are required in the evaluation of flood-producing potentials of river basins, and constitute the major portion of the basic data used in probable maximum precipitation determinations. Funds in the amount of $60,000 will be required in FY 1997 to work on several storm studies. Studies of storms occurred on July 1991 west of St. Louis County, River des Teres, MO; July 1990 at eastern NE and western IA; June 1991 at Elkhorn River Basin, NE and Part I storm study of the Jan 1982 event in San Francisco Bay area will be continued after being delayed in order to study the storms that produced the GREAT FLOOD of 1993.

2. General Hydrologic Studies: Studies under this sub-item include needed improvement in the analysis of rainfall-runoff relationships, flood frequency, snowmelt studies, hydrograph development and routing at selected watersheds, model calibrations in urban areas, analyses of past floods, methods for the hydraulic analysis of non-gaged streams, and other studies of related hydrologic nature. Studies of new techniques to improve the accuracy of hydrologic modeling require additional resources. New radar applications in rainfall-runoff forecast is an immediate concern.

18 MAR 1996

APPROPRIATION TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other Programs

(4) Hydrologic Studies (continued)

Funds in the amount of $300,000 in FY 1997 will be required to continue this sub-item at a level to insure proper and orderly progress. In New England region, a continuing comprehensive hydrologic analysis of 1987 flood event will provide resource data for future potential planning and design studies, as well as reservoir operation. An new effort which began in FY 1985 on re-examination of water yield and potential reallocation of storage space in Corps reservoirs is continuing.

3. Sedimentation Studies: The program is a continuing effort in which funds are used for conducting non-project sedimentation studies, and for the Corps share of an interagency sediment investigation program. The sedimentation studies include: promoting and supporting the standardization and development of equipment, criteria and methodology for the collection, analysis of suspended and bedload sediment characteristics of natural streams; and laboratory studies. The Hydraulics Laboratory, Waterways Experiment Station is sponsored by the Federal Interagency Sedimentation Committee (members from 18 agencies) and constitutes the major work effort under this sub-item. Funds in the amount of $80,000 in FY 1997 will be required to support the Federal Interagency Sedimentation Project (FSIP) located at the Waterways Experiment Station.

4. Streamflow and Rainfall Data: This is a continuing program in which funds are used for installation and operation of hydrometeorology gages of non-project nature that are needed by the Corps in addition to the stations in the cooperative programs conducted by the U.S. Geological Survey and the National Weather Service for the Corps. Funds are needed to continue support for the basic data collection in the Sleepers River Watershed

1953

18 MAR 1996

2. Collection and Study of Basic Data

c. Other Programs

(4) Hydrologic Studies (continued)

in Vermont. Additionally, gages are needed to observe historical high water marks for validation of hydrologic models. An amount of $60,000 in FY 1997 is required to continue the establishment and operation of these special-purpose gages, and to determine historical flooding in urban sites.

ACCOMPLISHMENTS:

1. Storm Studies: This continuing program was organized in 1939 for the purpose of investigating rainfall from major storms of record throughout the entire United States. The selected storms are analyzed for frequency, associated runoff and precipitation data. These efforts are coordinated with the National Weather Services (NWS) Hydrometeorological Branch and the resulting data from these studies are used in design of water resources project throughout the country. During the period, Corps offices have gathered data on other major storms, reviewed the scope and interim results of ongoing studies by NWS on development of standard project and probable maximum storms at various basins throughout the United States and territories. Storm studies are being utilized in probable maximum precipitation studies in coordination with NWS for northwest, California and southwest United States.

2. General Hydrologic Studies: Examples of some of the more important studies accomplished under this program are: determination of rainfall-runoff relationship in urban areas; general hydraulic model calibration; snow cover surveys; and adaptation of hydrologic programs to CADD equipment. Work continued on the regional frequency studies for three major river basins in the North Central States. The long-term foothill streams of Colorado flash flooding project progressed as scheduled. Particularly encouraging to

18 MAR 1996

2. Collection and Study of Basic Data

c. Other Programs

(4) Hydrologic Studies (continued)

date are the data developed for rainfall-runoff on small watersheds and evaluation of flood potential in connection with design of structure located in the flood basin. Works continue on the water yield study.

3. Sedimentation Studies: All of the funds allotted to this sub-item is to assist in financing the Corps share of the cooperative Interagency Sedimentation Project at the Hydraulics Laboratory, Waterways Experiment Station.

4. Streamflow and Rainfall Data: Stations funded under this sub-item are generally established and operated several years prior to anticipated authorization for project-type activities, in order to provide a background of observed data on which to base the planning and design of projects. Progress continues at these gage sites to collect hydrometeorological data in flood prone areas to document historical flood and calibration of hydrologic models.

FISCAL YEAR 1997: The appropriation requested for FY 1997 is required to continue the Hydrologic Studies Program at the level required to meet high-priority needs.

	ITEMS	FY 1996	FY 1997
1.	Storm Studies	$ 78,500	$ 60,000
2.	General Hydrologic Studies	309,000	300,000
3.	Sedimentation Studies	89,000	80,000
4.	Streamflow and Rainfall Data	42,500	60,000
	TOTAL	$519,000	$500,000

2. Collection and Study of Basic Data

c. Other Programs

(4) Hydrologic Studies (continued)

COORDINATION: The storm studies are prepared by USACE commands and are reviewed by the National Weather Services in the preparation of probable maximum precipitation estimates for the Corps. The Interagency Sedimentation Project is conducted cooperatively, and jointly funded, by eight Federal agencies. Information concerning streamflow and rainfall data collection by the Corps under this activity is made available to the U.S. Geological Survey and the National Weather Service.

1956

1 8 MAR 1996

APPROPRIATIONS TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other Programs

(5) Scientific and Technical Information Centers

SCOPE: Five information analysis centers (soil mechanics, concrete technology, coastal engineering, hydraulic engineering, and cold regions engineering) located at the U.S. Army Engineer Waterways Experiment Station and the Cold Regions Research and Engineering Laboratory, operating in specific technical areas closely related to Civil Works activities, are supporting the information needs of Department of Defense (DOD) engineers and scientists. The function of each center is to acquire, examine, evaluate, and disseminate newly published scientific and technical information generated within the U.S. and abroad.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 1997-2001) Program Cost	$ 790,000
Allocation Requested for FY 1997	150,000
Balance to Complete Five-Year Program After FY 1996	640,000
Allocation for FY 1996	130,000
Increase of FY 1997 over FY 1996	20,000
Average Annual Allocation for FY 1992-1996	177,000

JUSTIFICATION: The Department of the Army, through Army Regulations 70-45 and 70-22, has established policies with the objectives of eliminating unnecessary duplication of R&D effort and supporting the information needs of scientists and engineers, and has authorized the formation of centers for analysis of scientific and technical information. The specified information centers critically evaluate the technical validity and merits of published and unpublished research, design, construction, and similar technical report publications; and summarize those which present new, significant, and useful information.

1957

2. Collection and Study of Basic Data

c. Other Programs

(5) Scientific and Technical Information Centers (continued)

The effectiveness of each of the information analysis center activities and services is evaluated annually.

ACCOMPLISHMENTS: At two-month intervals, technical summaries and evaluations of about 10 newly acquired and potentially valuable U.S. and foreign books and reports are distributed within DOD. State-of-the-art surveys, special technical reports, and translations are prepared in response to user requests. Several thousand inquiries (telephone, letters, visits) requiring technical responses are processed annually, and numerous technical evaluations, bibliographies, and reports are prepared. About 80% of the inquiries are generated by Federal and State governmental elements, the balance from private industry and foreign governments.

Technical Field	Subjects	Primary Service Areas
Soil Mechanics	Embankment and foundation engineering, engineering geology	DOD
Concrete Technology	Cements, concrete, aggregates, concrete construction	DOD
Coastal Engineering	Wave action, shore processes, inlet and estuary dynamics, navigation structures, and coastal construction	National

APPROPRIATIONS TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other Programs

(5) Scientific and Technical Information Centers (continued)

Technical Field	Subjects	Primary Service Areas
Hydraulic Engineering	River, harbor, and tidal hydraulics; flows through pipes and conduits; spillways; hydrodynamics	DOD
Cold Regions Engineering	Ice engineering, environmental engineering remote sensing, geophysics, meteorology, climatology, ecology, geology	National

Information Analysis Centers	FY 1996	FY 1997
Soil Mechanics	$ 26,000	$30,000
Concrete Technology	26,000	30,000
Coastal Engineering	26,000	30,000
Hydraulic Engineering	26,000	30,000
Cold Regions Engineering	26,000	30,000
	$130,000	$150,000

1959

18 MAR 1996

2. Collection and Study of Basic Data

c. Other Programs

(5) Scientific and Technical Information Centers (continued)

COORDINATION: The Scientific and Technical Information Centers (as well as Corps Laboratories, and Division and District offices) distribute reports, abstracts and other scientific and technical information to the Defense Technical Information Center (DTIC), the origin library, and the HQUSACE library, to ensure wide circulation and availability. Reports are available for searching throughout the Corps through the Corps Library Program's computer system, LS/2000. DTIC publicizes reports through its own DOD database and forwards the reports to the National Technical Information Service (NTIS), Department of Commerce.

NTIS places the reports into a compendia of Selected Water Resources Abstracts and an annual cumulative edition, with conveniently-indexed and cross-referenced identification of what is being or has been done in water resources research and related scientific and engineering fields, and by whom, where, and when.

1960

18 MAR 1996

APPROPRIATION TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other Programs

(6) Coastal Field Data Collection

SCOPE: The nationwide program is designed to systematically acquire and assemble information required to accomplish the Corps' mission in coastal navigation, flood control and storm damage reduction. The information directly supports project comprehensive regional and local planning, design, construction, operation, and maintenance. Cost-effective mission accomplishment requires long-term data that encompass winds, waves, currents, water levels, historic trends in shoreline position, variability in beach profile and bottom configuration, sediment characteristics, and geomorphologic data. In particular, wave data are the key design parameter for coastal projects. For example, a 20% error in wave height leads to a 100% difference in stone size for navigation structures. With 265 existing navigation projects to repair and maintain (77% are more than 50-years old), costs attributable to having no or poor data are staggering. These data are either unavailable in existing archives, are of uncertain or poor quality, or are too sparsely distributed temporally and/or spatially to have statistical viability. The required data are regional in nature and not properly chargeable to authorized projects. Sufficient time is not available prior to or during project preauthorization planning studies to accumulate the years of base-line data necessary for adequate assessment of technical, economic, and environmental feasibility. Acquisition of the information will be accomplished through the concurrent accumulation of complementary items each of which is unique and contributes certain critically needed data. The program is organized into four subitems: (1) wave information studies; (2) wave gaging; (3) beach and nearshore data; and (4) information management.

APPROPRIATION TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other Programs

(6) Coastal Field Data Collection (continued)

SUMMARIZED FINANCIAL DATA:

Estimated five year (FY 1997-2001) Program cost	$16,900,000
Allocation Requested for FY 1997	1,500,000
Balance to Complete Five-Year Program after FY 1997	15,400,000
Allocation for FY 1996	2,668,000
Increase (decrease) of FY 1997 over FY 1996	(1,168,000)
Average Annual Allocation for FY 1992-1996	$ 3,184,000

JUSTIFICATION:

1. Wave Information Studies. Numerical simulation techniques are used to estimate wave environments, including direction, from weather information. Most wave gage data are non-directional; hindcast data provides 30-37 year directional wave statistics. This information is paramount to the functional/structural design and economic evaluation of coastal projects. Additionally, detailed wind information is produced. These data are made available to Corps of Engineers Districts (in addition to reports) through a computerized coastal engineering data retrieval system, from which most statistical representations desired of waves and water levels can be obtained. Funding required is $500,000.

1962

1 8 MAR 1996

2. Collection and Study of Basic Data

c. Other Programs

(6) Coastal Field Data Collection (continued)

2. Wave Gaging. High-quality wave data are needed to predict harbor shoaling, harbor oscillation, jetty stabilization, beach erosion, etc. These data are imperative to operational guidance for dredging, navigation, maintenance, etc. Upon acquisition, these data are analyzed and made available to Corps engineers, planners, and managers via computer terminals and annual reports. These efforts are coordinated with the National Oceanic and Atmospheric Administration (NOAA), and the data are made available to NOAA and the public. Cooperative agreements for the collection of wave data have been executed with the states of California, Alaska, Oregon, Florida, Hawaii, Washington, Texas, and Virginia. These agreements provide a mechanism for other Federal, state, and local agencies to cooperate in the collection of coastal data. Funds in the amount of $930,000 will be needed to continue partial wave gaging on a limited portion of the US coast with the remainder of the National system closed down.

3. Beach and Nearshore Data. An historical record of past episodic events provides the best prediction of future occurrences. The objective of the effort is to provide the quantity and quality of timely data required to accurately document characteristics and effects of episodic coastal events such as severe extratropical storms, hurricanes, tsunamis, etc. Measurements of storm-induced beach, dune, and nearshore profile changes are necessary to quantify erosion and storm damage. Correlation of these data with local wave and water level data is required for the design of coastal navigation and storm protection projects. A cooperative effort involving FEMA, USGS, and NOAA is underway to develop a national plan for interagency cooperation for coastal storm data acquisition. In cooperation with NOAA five open coast tide stations were hardened so that they will survive severe coastal storms. Wave and tide stations have been deployed on three oil platforms to obtain information on hurricane waves and surges in the Gulf of Mexico,

1963

1 6 MAR 1996

and a cooperative effort with the NOAA Pacific Marine Environmental Laboratory will measure tsunami waves in the nearshore zone. Funds in the amount of $0 are needed with these efforts ended.

4. Information Management. This task objective is to make coastal data readily available to Corps Districts and Divisions. A standardized data base is being developed so that coastal data formats and analysis procedures are compatible throughout the Corps of Engineers. The value of program data and project-related data is maximized through the use of Corps-wide standards, routine publication of available data (and/or data sources), utilization of a centralized data library, and maintenance of the Coastal Engineering Data Retrieval System. Principal forms of output are information reports, data resource reports, and computer-based data files. The standardized procedures will help avoid intra-agency duplication, minimize data collection efforts, and identify data deficiencies. Funding required is $70,000.

ACCOMPLISHMENTS: The wave information study has resulted in 37 years of simulated directional wave data for the Atlantic and Pacific coasts and 30 years for the Gulf coast and the US shores of the Great Lakes. Thirty years of wind data for the three coasts have also been produced. Joint efforts have been established with the States of California, Alaska, Texas, Florida, Hawaii, Washington, Virginia, Oregon, and Alaska for collection of wave data. Wave data have been acquired from CFDC program gages, numerous specific project stations, and other agencies. An information management system was established to handle the simulated wave data, the gaged wave data, and the surf and nearshore current observation data. User-friendly regional wave data base systems havebeen developed to provide low cost microcomputer resident capabilities to Districts and Divisions.

APPROPRIATION TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other Programs

(6) Coastal Field Data Collection (continued)

PROGRAM ITEM	FY 1996	FY 1997
1. Wave Information	$500,000	$ 500,000
2. Wave Gaging	1,500,000	930,000
3. Beach and Nearshore Data	400,000	0
4. Information Management	268,000	70,000
	$2,668,000	$1,500,000

1965

18 MAR 1996

APPROPRIATION TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other Programs (Continued)

(7) Transportation Systems

SCOPE: The Transportation Systems Program is required to support Corps field offices in the accomplishment of navigation project benefit/cost analysis. Planning of waterway and harbor navigation projects requires consideration of benefits and costs within the context of not only the water transportation system, but also the total national transportation system. This centrally managed program is a continuing effort that provides analytical techniques and methods, nationally consistent cost data, updates of world fleet and traffic forecasts, reports documenting the results of transportation systems analysis, and field support services on a Corps-wide basis. The major purpose of the program is to improve the technical quality and accuracy of navigation planning studies, to improve the long-range project and plan formulation for navigation system improvements, and to reduce navigation system operating costs and the costs of feasibility studies by making such recurring national scope information available to all Corps offices. The activities of the program include: (1) develop, maintain and improve transportation systems analysis methodologies and data bases used to implement the regional waterway projects; (2) develop and test methodology and. analytical data bases for inland and deep draft navigation investment planning systems; (3) develop procedures and supporting data bases to allocate fleet and traffic projections, and (4) provide consulting assistance to Corps field offices in the implementation of navigation planning methods and the use of analytical of data files.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 1997-01) Program Cost	$5,350,000
Tentative allocation for FY 1997	950,000
Balance to Complete Five-year Program after FY 1997	4,400,000
Allocation for FY 1996	704,000
Increase in FY 1997 from FY 1996	246,000
Average Annual Allocation for FY 1992-96	746,800

JUSTIFICATION: The $950,000 requested in FY 1997 for Transportation Systems would be used to update data and analysis used for the investment planning for the inland waterways and the development of planning methods, computerized techniques and associated data bases to support project studies. Specifically, $150,000 would be used to provide vessel operating costs used to estimate transportation cost reduction benefits for any navigation studies Corps-wide; $255,000 would be used to provide fleet forecasts of waterborne traffic of deep and shallow draft navigation projects; $125,000 will be used to provide rail, barge and truck models for use in estimating origin-destination transportation savings costs for use by Corps field offices, $145,000 will be

18 MAR 1996

1996

APPROPRIATION TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other Programs (Continued)

(7) Transportation Systems (Continued)

used to update the wheat components of the grain transportation cost and to allow the annual update of the model's regional corn and soybean supply/demand relationships; $200,000 will be used to support development of economic and planning portions of the Deep Draft and Inland Navigation Risk and Uncertainty Guidance; $50,000 will be used to coordinate the navigation research priorities with the Transportation Research Board; and $25,000 will be used to provide consulting technical support services to the Corps field offices.

ACCOMPLISHMENTS:

1. Systems analysis models and supporting data bases have been developed, field tested and systematically updated to improve project planning efficiency. Incremental improvements are underway to reduce the cost and data requirements.

2. Completed draft guidance for Deep Draft Navigation Risk and Uncertainty analysis.

3. Updated the PC-compatible barge, rail and truck transportation cost models and have initiated a process by which future annual updates of the models are automatically available to Corps field offices.

4. Completed the annual update of ocean and inland vessel operating costs and distributed the data to Corps field offices.

5. Provided national scope forecasts of deep-draft and shallow-draft fleet and traffic projections for use by District offices.

6. Updated the regional corn and soybean excess demand/supply relationships of the Grain Transportation Systems Model, and guided the New Orleans District's use of the barge, rail and truck cost models in the Grain Model update.

7. Completed analysis of investment priorities for capacity expansion, correction of condition problems, and small scale improvements under assumptions of constrained budget ceilings and contributions form the Inland Waterways Trust Fund.

8. Completed report on summary condition indicator estimates for the primary lock within the inland fuel tax system.

1967

18 MAR 1996

APPROPRIATION TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other Programs (Continued)

(7) Transportation Systems (Continued)

ACCOMPLISHMENTS: (Continued)

9. Completed the 1995 edition of the *Inland Waterways Review*, providing an overall summary of waterway traffic trends, lock and segment performance indicators and the status of the planning, design, construction, operations, and rehabilitation programs on the inland waterways.

10. Completed a study on the opportunities and problems associated with the use of the inland waterway transportation for military purposes.

11. Developed prototype analytical models to: simulate waterway lock operations; improve lock capacity and reduce delays by optimizing chamber assignment, tow sequencing, chamber packing, and tow approach speeds; evaluate the reliability of elements of the inland waterway system; evaluate the causes and effects of service interruptions at locks based on statistical estimation and queuing methods; and to evaluate interacting queues in networks with out the expense of simulation.

1968

18 MAR 1996

APPROPRIATION TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other Programs

(8) Remote Sensing Systems Support

This item supports the overall technology transfer requirement of the Corps Civil Works Program for Remote Sensing systems, which is the responsibility of the Cold Regions Research and Engineering Laboratory (CRREL) through its Remote Sensing/Geographic Information Systems (GIS) Center.

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY 1997-2001) Program Cost	$1,600,000
Allocation Requested for FY 1997	300,000
Balance to Complete Five-Year Program After FY 1997	1,300,000
Allocation for FY 1996	222,000
Increase of FY 1997 over FY 1996	78,000
Average Annual Allocation for FY 1992-1996	300,000

JUSTIFICATION:

The Remote Sensing/GIS Center is the Corps Center of expertise for Civil Works remote sensing and GIS technologies. The Center supports the Corps with hydrologic, meteorological, and environmental data sets to accomplish its mission. The Center evaluates state-of-the-art technologies regarding sensor systems, and data collection and analysis systems, integrating these technologies into the Corps Districts, Divisions, and other agencies as appropriate.

APPROPRIATION TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other Programs

(8) Remote Sensing Systems Support (continued)

ACCOMPLISHMENTS IN FY 1996:

1. Supported the Remote Sensing/Oil Spill and other applied engineering projects (water control and reservoir regulation, emergency management, oil spill clean up etc.) through interaction with Corps field offices.

2. Acted as technology point of contact for the Corps of Engineers for remote sensing and GIS technologies.

3. Provided assistance on the integration of near real time radar and other dynamic and statistical data sets into Corps water control and natural resources activities, including reservoir regulation, navigation, water supply, dam safety etc.)

4. Continued coordination with NASA on Mission-To-Planet Earth Program and potential technology applications (hydrology, hydraulics, environmental monitoring, and climate change) to Corps programs.

5. Provided state of the art remote sensing, image processing and geospatial data systems support to the Corps Civil Works Program.

6. Continued technology transfer through training courses and technical demonstrations.

1970

18 MAR 1996

2. Collection and Study of Basic Data

c. Other Programs

(8) Remote Sensing Systems Support (continued)

7. Provided administrative and technical support to Corps District Offices for input to the snowmelt subroutines in models for reservoir regulation and water control data management systems.

8. Continued to participate in defining geospatial data (metadata) requirements for Corps districts and divisions.

9. Supported one-stop service requests from Corps divisions and districts.

10. Assisted in the development and testing of software to merge remotely sensed data with GIS for use in water control data management activities at Corps Districts.

11. Participated as technical advisor in the Corps field emergency management preparedness exercises.

12. Provided technical support to districts and divisions in major natural disasters (hurricanes, floods, and earthquakes) and support districts and divisions in the process.

13. Participated with the Tri-Service CADD/GIS Technical Center's field work groups to coordinate and implement the use of GIS at Corps field offices.

14. Provided emergency management assistance to other federal agencies (THEMA, NOAA, EPA, DOE, Navy) and support of the Federal Geographic Data Committee.

1971

18 MAR 1996

APPROPRIATION TITLE: General Investigations, FY 1997

2. Collection and Study of Basic Data

c. Other Programs

(9) Flood Damage Data Program - New

SCOPE: The Flood Damage Data Program is required to facilitate the collection and maintenance of basic flood damage data to support Corps field offices in the accomplishment of flood damage reduction projects and studies. Planning and evaluation of flood damage reduction projects requires knowledge of actual damages caused to various types of properties. The relationships between flood depth, water velocities, debris content, value and type of property, and the amount of damage are essential to making good estimates of the value of projects. The distribution of damages resulting from the various factors involved are needed for the risk analysis framework adopted for water resource studies. Damage data is obtained in some instances when funded studies are ongoing when the damaging event occurs. In most instances when flooding occurs there are no current studies in the area or other funding mechanism to collect the requisite data to be used in future analysis or to report and record accurately the damages incurred and the environmental factors which caused the damages. Currently no centralized flood damage data maintenance forum exists from which to retrieve basic data for research efforts and for specific project studies. The major purpose of the program is to improve the technical quality and accuracy of flood damage data, to improve the understanding of the interrelationships of the characteristics of flooding on property damage, to improve the formulation of flood damage reduction projects, and reduce the costs of feasibility studies. The activities of the program include: (1) conduct actual flood damage surveys immediately following flood events, and (2) develop, maintain, and improve flood damage data bases for flood reduction projects,

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 1997-01) Program Costs	$1,250,000
Tentative allocation for FY 1997	$ 250,000
Balance to Complete Five-year Program after FY 1997	$1,000,000
Allocation for FY 1996	0
Increase of FY 1997 from FY 1996	+250,000
Average Annual Allocation for FY 1992-96	0

JUSTIFICATION: The $250,000 requested in FY 1997 for Flood Damage Data would be used to establish a National data base system for reporting and maintenance of flood damage data collected, develop and maintain data collection survey forms, and collect post flood damage data. Specifically, $50,000 would be used to develop the National flood damage data base; and $200,000 would be used to collect damage data for approximately 6 flood events.

1972

18 MAR 1996

APPROPRIATION TITLE: General Investigations, FY 1997

2. COLLECTION AND STUDY OF BASIC DATA

c. Other Programs

(10) Automated Information Systems Supports

Allocation for FY 1996 $1,927,000 Tentative allocation for FY 1997 $650,000

The FY 1996 allocation included funding for a number of automated information engineering systems which were previously funded by centralized accounts. This funding was viewed as an interim step toward the development of mechanisms which permit charging programs and projects for the development and maintenance of the automated systems which they utilize. For FY 1997, the Corps will use such mechanisms and have not included funding for these systems in our General Investigations allocation. Funding for the Tri-Service CADD/GIS Technology Center was included in the FY 1996 General Expenses program. This item too was previously funded by a centralized account and its inclusion in the General Expenses program was viewed as an interim step toward the determination of the most appropriate source of funding. Although this effort involves some executive direction and management, it primarily provides technical support to engineers and scientists utilizing CADD and GIS technology in the planning, design, construction, operation and maintenance of Corps projects. However, as there is no way of calculating the benefits which individual projects receive from the CADD/GIS Center, the Corps does not propose to charge projects and programs for the Civil Works share of its maintenance costs.

(a) Tri-Service CADD/GIS Technology Center

SCOPE: In 1992, the former Army Corps of Engineers' Computer Aided Design and Drafting (CADD) Center, located at the Army Engineer Waterways Experiment Station (WES), was expanded to an Army, Navy, Air Force (Tri-Service) center, including the addition of Geographic Information Systems (GIS) technology, by a joint agreement between the Corps,

1973

APPROPRIATION TITLE: General Investigations, FY 1997

2. COLLECTION AND STUDY OF BASIC DATA

c. Other Programs

(10) Automated Information Systems Supports (continued)

the Naval Facilities Engineering Command, and the Air Force Civil Engineer to reduce duplication of effort between the three services in the management of CADD/GIS technology for facilities and environmental engineering. As a result, this Center is a multi-service vehicle to set standards, coordinate CADD/GIS systems uses, promote system integration, support centralized acquisition, and provide assistance for the installation, training, operation, and maintenance of CADD/GIS systems within the DoD facilities and environmental communities, including the Corps districts. All Corps districts use CADD, GIS and computer mapping systems in all phases of Corps projects, including planning, real estate, design, construction, operations, maintenance and readiness which benefit from these efforts. For FY 1996, the Army/Navy/Air Force portion was $2,400,000 and the Civil Works portion (from General Expense Program Accounts) was $650,000, for a total of $3,050,000. The $650,000 requested for FY 1997 for the Civil Works portion will support approximately 1,000 workstations and 2,000 users of CADD/GIS technologies for Civil Works Projects.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 1997-2001) Program Cost	$3,125,000
Tentative Allocation for FY 1997	650,000
Balance to Complete Five-Year Program after FY 1997	2,475,000
Allocation for FY 1996 (General Expense Program Account)	650,000
Increase in FY 1997 above FY 1996	0
Average Annual Allocation for FY 1992-1996	650,000

1974

18 MAR 1996

APPROPRIATION TITLE: General Investigations, FY 1997

2. COLLECTION AND STUDY OF BASIC DATA

c. Other Programs

(10) Automated Information Systems Supports (continued)

JUSTIFICATION: All Corps districts use CADD, GIS and computer mapping systems. Practically all engineering drafting tables have been replaced with CADD platforms or computer mapping systems and much environmental and natural resources analysis are being performed on GIS platforms. Many of the geospatial data standard efforts of the Center are necessary for the Corps Civil Works program to comply with the Spatial Data Transfer Standards (SDTS) contained in the Federal Information Processing Standards (FIPS) 173 and to have standard civil works features accepted into the Defense Data Dictionary System (DDDS). FIPS compliant data standards which are developed by the Center are used for both in-house and contractor produced drawings, maps and analyses. The Center is actively coordinating its CADD standards with the National Institute of Building Sciences to achieve industry consensus, thus reducing the redundancy with the private sector and reducing cost for both government and business. The Center ensures that the Corps obtains the maximum return on its investment in CADD and GIS by coordinating development efforts and distributing end products to Corps offices. The CADD and GIS systems at field offices can achieve maximum productivity when they take advantage of the economies of scale offered by sharing the development and use of common data standards, procedures, and applications. This sharing is accelerated through a concerted effort by the Center, working with various field task groups, to draw from field expertise and dissemination of this knowledge in the form of lessons learned and standards to benefit all Corps users. Comprehensive data standards supported by the Center permit government and industry users to produce equivalent designs, maps and analyses on a variety of computer systems using leading off-the-shelf CADD and GIS software. This assures that all Corps offices have the ability to share and exchange their work among themselves and with others, including the private sector.

APPROPRIATION TITLE: General Investigations, FY 1997

2. COLLECTION AND STUDY OF BASIC DATA

c. Other Programs

(10) Automated Information Systems Supports (continued)

ACCOMPLISHMENTS IN FY 1996: (General Expense Program Accounts)

1. Tri-Service geospatial data standards were modified to be compliant with FIPS 173 and corresponding data elements of the Defense Information System Agency's Defense Data Dictionary System. Documentation and software were also developed to implements these standards.

2. Implementation software was developed for the Tri-Service Architecture/Engineering/Construction (A/E/C) CADD standards along with non-graphic features and attributes, including coordination with the National Institute of Building Sciences.

3. Published a report on Tri-Service A/E/C CADD and GIS deliverable guidelines which established formats and submission requirements for CADD projects.

4. Developed the first version of the facility management (FM) standards.

5. Added 500 generic construction details for the structural and civil engineering disciplines to the CADD Details Library on CD-ROM.

6. Developed formats and procedures for electronic distribution of construction contract bid sets.

APPROPRIATION TITLE: General Investigation, FY 1997

3. Research and Development

The Corps must pursue an aggressive R&D effort to take advantage of rapidly developing technologies and techniques which offer the possibility of significant monetary savings and greater reliability, safety, and overall effectiveness. The added complexities of downsizing, environmental and social considerations, energy conservation, and the mounting concern with urban problems necessitate, more than ever, increased emphasis on new approaches and methods.

The Civil Works R&D program is formulated to directly support the established business practices and strategic directions of the Civil Works Program including: flood control; inland and coastal navigation; environmental quality (including environmental compliance, environmental restoration and the Corps regulatory responsibilities); water supply, hydropower and related water management issues; emergency operations; and recreation. The Civil Works R&D requirements are primarily user driven and the effort is essentially a "problem solving" process by which the Corps systematically examines new ideas, approaches, and techniques, with a view toward improving the efficiency of its planning, design, construction, operations and maintenance activities.

Results of this R&D effort are directly incorporated into practice within the Civil Works Program through the Civil Works Guidance Maintenance Program involving revisions or additions to Engineer Regulations, Engineer Manuals, Technical Guidance Manuals, Engineer Technical Letters, or Guide Specifications. Numerous other means of internal technology transfer are also used such as the Corps training courses, workshops, and other professional contacts. In considering the Civil Works R&D program against the background of the Civil Works mission it supports, it is noted that this mission is the most widespread and varied of the several Federal water resources programs. Yet in comparison to many other Federal agencies and private industry, the Corps of Engineers spends very little on R&D. The request for $21,500,000 of General Investigations funds for the FY 1997 program would accomplish only the highest priority R&D needs.

<u>COORDINATION</u>:

The Corps manages and conducts Civil Works R&D through its four research laboratories: the Cold Regions Research and Engineering Laboratory (CRREL) at Hanover, NH; the Construction Engineering Research Laboratories (CERL) at Champaign, IL; the Waterways Experiment Station (WES) at Vicksburg, MS; and the Topographic Engineering Center (TEC) at

1977

18 MAR 1996

3. Research and Development (cont)

Fort Belvoir, VA. Some elements of Civil Works R&D are also assigned to the Corps Institute for Water Resources (IWR) at Fort Belvoir, VA and the Hydrologic Engineering Center (HEC) at Davis, CA. Approximately sixty-five percent of the current research effort is accomplished in-house and the remainder is done under contract by universities or private firms.

In order to most effectively utilize limited R&D resources and to avoid unnecessary duplication of research effort, the Civil Works R&D Program maintains an aggressive external technical exchange and technology transfer. Laboratory representatives attended the Biennial Interagency Research Coordination Conference in October 1995. This biennial coordination conference has proven to be the most effective single mechanism for interagency coordination. The exchange of information eliminates undesirable overlap and duplication of research in scientific and engineering fields relating to water resources development. In addition to the primary involvement of the TVA, Bureau of Reclamation, Bonneville Power Administration, and the Corps as the four "member agencies", several other agencies, including the Soil Conservation Service and the Bureau of Mines, contribute. In addition, Corps researchers are in continuous close contact with NOAA, EPA, USGS, USCG, NASA, DOT, NIST, FHWA, US Nuclear Regulatory Commission, the U.S. Navy, and state and local governments concerning Civil Works R&D activities.

Corps researchers also maintain continuing contact with the research activities of universities and industry through regular membership in such organizations as the American Society of Civil Engineers, the American Concrete Institute, the American Society of Testing and Materials, the International Conference on Coastal Engineering, the American Association of Port Authorities, the Coastal Society, the Offshore Technology Conference, International Society of Soil Mechanics and Foundation Engineering, U.S. and International Committees on Large Dams, and the Permanent International Association of Navigation Congresses.

18 MAR 1996

APPROPRIATION TITLE: General Investigation, FY 1997

3. Research and Development (cont)

SUMMARIZED FINANCIAL DATA

Estimated Five Year (FY 1997-FY 2001) Program Cost	$112,500,000
Allocation Requested for FY 1997	21,500,000
Balance to Complete Five Year Program after FY 1997	91,000,000
Allocation for FY 1996	17,589,000
Increase of FY 1997 over FY 1996	3,911,000
Average Annual Allocation for FY 1992-FY 1996	21,189,000

CURRENT RESEARCH EFFORT: The proposed FY 1997 R&D Program has been restructured to more accurately reflect the Civil Works business practices and the anticipated technological emphasis and requirements of the Civil Works Program and its evolving missions during the next five-year planning period, and for more effective R&D Program management. Major areas of restructuring include combining on-going R&D programs supporting the diverse environmental requirements of the CW program into an overall Environmental Quality Research Area. This was necessary to more accurately manage and coordinate the increasingly diverse and interrelated nature of R&D requirements within this research area. The Materials Research Area was renamed the Materials/Structural Engineering Research Area to more accurately portray the scope of this effort and the Corps increasing interest in high performance construction materials and systems for cost-effective project construction, rehabilitation, and project retrofitting within areas of seismic concern. The Surveying/Remote Sensing Research Area has been expanded in scope to fully explore and develop cost-effective Corps management tools required for spatial data management needs throughout the Civil Works program. Work will primarily focus on such rapidly expanding technologies as GIS, Differential Global Positioning Systems, air-borne laser surveying systems/platforms, and the anticipated deployment of several new earth-orbiting remote data collection sensors. Finally, the Coastal Engineering Research Area has been retitled the Coastal Navigation and Storm Damage Reduction Research Area to more accurately convey the scope of this research and its increasing focus on coastal navigation and related sediment management issues.

APPROPRIATION TITLE: General Investigation, FY 1997

3. Research and Development (cont)

This R&D Program now includes six major research focus areas and a special interest area, as listed below:

* Materials/Structural Engineering: Includes specific R&D programs on Soils, Rock, Concrete, Structural Engineering and Electrical/Mechanical Engineering.

* Coastal Navigation and Storm Damage Reduction: Includes specific R&D programs on Harbor Entrances and Coastal Channels; Coastal Sedimentation and Dredging; and Coastal Structure Evaluation and Design.

* Flood Control and Navigation: Includes specific R&D programs on Flood Control Structures; Inland Navigation Hydraulics; Hydrologic Engineering; Water Resources of Cold Regions; Ice Engineering; and Flood Channels.

* Environmental Quality: Includes specific R&D programs on Natural Resources Management; Long-Term Effects of Dredging Operations; Water Quality Assessment and Management; and Environmental Impact Research.

* Water Resources Management Research: Includes specific research on Improved Planning Methodologies and advancements in Program and Project Management Techniques, and an improvement in operations and maintenance management techniques.

* Surveying/Remote Sensing: Includes specific R&D programs on Surveying and Mapping; and Remote Sensing.

Special Interest R&D Program:

* Risk Analysis for Water Resources Investments Program.

1980

18 MAR 1996

APPROPRIATION TITLE: General Investigation, FY 1997

3. Research and Development (cont)

RESEARCH AREA	FY 1996 ALLOCATION	FY 1997 TENTATIVE ALLOCATION
a. Materials/Structural Engineering	$ 2,182,000	$ 2,700,000
b. Coastal Navigation and Storm Damage Reduction	4,337,000	5,300,000
c. Flood Control & Navigation	3,803,000	4,700,000
d. Environmental Quality	3,337,000	4,000,000
e. Water Resources Management	1,505,000	1,800,000
f. Surveying & Remote Sensing	1,371,000	1,700,000
g. Risk Analysis for Water Resources Investments	1,054,000	1,300,000
	$17,589,000	$21,500,000

1981

18 MAR 1996

APPROPRIATION TITLE: General Investigation, FY 1997

3. Research and Development

a. Materials/Structural Engineering

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY 1997-2001) Program Cost	$14,000,000
Allocation Requested for FY 1997	2,700,000
Balance to Complete Five-Year Program after FY 1997	11,300,000
Allocation for FY 1996	2,182,000
Increase of FY 1997 over FY 1996	518,000
Average Annual Allocation for FY 1992-1996	2,600,000

FY 1997 ACTIVITY

Approximately sixty percent of the Corps civil works structures are more than 30 years old. About one-half of the Corps lock structures along inland waterways have reached or exceeded their 50-year design life. It is the Corps responsibility to provide these assets for public use with a high level of safety and reliability within severe budgetary constraints that often preclude or limit replacement or major rehabilitation. Results from the Material/Structural Engineering Research Area provide the Corps field engineers with the most effective technologies to provide the Nation with safe, reliable, and economical facilities.

Present research focus is on providing improved techniques to determine the adequacy of aging structures to safely withstand hydraulic forces, enhance structural durability through innovative high-performance construction materials, and design and analyze foundations and structural systems. The return on investment is measured in terms of increased public safety and in reduced construction and maintenance costs for Corps civil works structures.

18 MAR 1996

3. Research and Development

a. Materials/Structural Engineering (cont)

Specifically in FY 1997, the four major thrusts are summarized:

1. The Geotechnical research thrust will continue to emphasize technology development for safety of dams, levees, embankments, and foundations. Numerical modeling research will allow designers to make more accurate safety assessments of natural and man-made structures and to apply innovative construction methods with greater certainty, making designs for rehabilitation and new construction more cost-effective. New numerical methods to analyze large deformations will fill a persistent knowledge gap and will allow more reliable assessment of safety of water retention structures subject to post-earthquake deformations, more reliable assessment of pile foundation systems and tunnel features, and interpretation of in-situ properties tests. Improvements in subsurface exploration in rock masses will increase safety, improve designs, and reduce costly litigation from "changed conditions" claims. Controlled experiments on penetration testing will resolve many uncertainties of using rapid, economical in-situ tests leading to their increased use in obtaining more detailed subsurface data.

2. The Structural Engineering thrust will emphasize continued development of automated design and analysis procedures for Corps hydraulic structures. This program supports research necessary to develop design tools in the areas of soil-structure interaction, mass concrete navigation structures, arch dams pile foundations, and flow-induced vibration of dam gates. Development of innovative testing methods will be undertaken to improve the accuracy of existing design and analysis tools.

3. The Concrete Research thrust will continue to emphasize development of efficient concrete technology to significantly reduce construction costs and to improve structural durability, service life, and safety. For example, cost savings of 30 to 50 percent are realized in dam construction and rehabilitation with roller-compacted concrete (RCC) technology developed in this program. Continued research and improvement in RCC will make its use feasible for construction of massive civil works structures in virtually all natural exposure environments. The development of high-performance construction materials and system technologies will enable the Corps to significantly reduce project delivery times and operations, maintenance, and energy costs, while improving structural durability and service life. Continued improvement in materials and concrete testing and analytical

18 MAR 1996

1983

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3. Research and Development

a. Materials/Structural Engineering (cont)

technology will greatly assist in optimizing materials selection and concrete physical properties, which will assure that both the construction and operation of Corps civil works structures are as efficient and economical as possible.

4. Work in the Electrical/Mechanical thrust will continue on protective coatings. Epoxy zinc coatings will be reformulated to meet the more severe air pollution regulations. Field guidance will be developed to improve the inspection of applied coating systems. High output metallizing equipment will be evaluated for use on structures that are to be in constant immersion. Performance requirements for liquid off-the-shelf paints will be developed so that environmentally acceptable materials may be specified.

FY 1996 ACCOMPLISHMENTS

1. Research was completed on compaction and shear strengths of soils containing large particles and was recognized by the receipt of the Army R&D Achievement Award. The new methods will significantly improve the accuracy of quality control and quality assurance programs for fills constructed of soils containing large particles and reduce the cost by 30 percent.

2. Techniques were developed to analyze the behavior of structures and soil masses undergoing large deformation. These techniques have been used to develop design criteria for sheet piles founded in soft soils. Cost savings for this application at one project alone were in excess of $6 million. Solutions to other civil engineering problems using this technique will result in similar savings.

3. Research continued toward the development of analytical procedures for the design of geosynthetic reinforced earth embankments constructed on weak foundation soils. Geosynthetic reinforcing materials have been available for a number of years but due to poor understanding of the behavior, full benefits of their use have not been realized. Improvement of these analytical techniques and design procedures has the potential for savings greater than $500,000 on these types of projects.

1984

Appropriation Title: General Investigation, FY 1997

3. Research and Development

a. Materials/Structural Engineering (cont)

4. A revolutionary analytical method was developed that, for the first time, permits the complete coupling of external and internal processes (e.g., distributed loads) that create physical responses in soil and rock masses. This method, which is the generalization of several presently used methods such as the finite element method, reduces uncertainties arising from the governing equations and their solutions, thus allowing more accurate engineering solutions.

5. Guidelines were developed for identifying appropriate techniques for excavating rock, thus reducing a common source of construction litigation and cost overruns. Claims of changed conditions on a rock dredging project can often exceed $1,000,000. This research will potentially reduce such claims by as much as 40 percent.

6. Guidelines were developed that reduced the variability in direct shear test results used to measure friction angles for the design/evaluation of gravity structures (e.g., dams, locks) or rock slopes by as much as 12 degrees. Because of the reduced variability, the friction angle used in design or analysis can be confidently increased by as much as 5 degrees. For a typical 60-ft by 1500-ft lock wall, increasing the friction angle by 5 degrees results in a construction savings of $4,200,000.

7. Criteria and automation of the geometric layout of single-, double-, and three-centered arch dams to be used in the analysis/design of arch dams such as the Haysi Arch Dam being designed by the Huntington District was completed. This was previously a very labor-intensive, trial and error procedure that required two months of a designer's time for each site/orientation explored for placement of the arch dam, while this new automated procedure requires approximately one week for each. This is an 80 percent savings in design time for each site/orientation. This automated approach will provide the opportunity to quickly investigate a wide range of sites/orientations providing a more economical, efficient design while keeping within project schedules.

8. Design guidance for fatigue and fracture control of thick plate weldments based on minimization of residual stress and degradation of steel material in the heat-affected zone of the weld was developed. This guidance provides improved reliability and safety for thick plate weldments which is particularly significant for non-redundant structural

1985

18 MAR 1996

3. Research and Development

a. Materials/Structural Engineering (cont)

components such as tainter gate hitches. Repairs for just ten of the hundreds of tainter gate hitches on dams throughout the country would cost over $300K. This guidance will be extended to other steel gates, such as miter and lift gates, which are used to regulate traffic on the nation's waterways, where savings will be measured in the millions of dollars if an extensive repair or failure should occur.

9. Completed the automation of an innovative procedure for the analysis/design of floodwalls, which will be available for use on numerous local flood protection projects, such as the Chicago shoreline protection. In the past, the only tools to overcome the overly conservative conventional analysis/design techniques were to use sophisticated, time-consuming nonlinear finite element (FE) analysis. This automated analysis/design procedure provides a simplistic analysis methodology which will produce results equivalent to those from the FE at the cost of the conventional approach while providing construction cost savings of 10 to 30 percent.

10. Methodology for modeling a discrete crack within a smeared crack, nonlinear, finite element analysis for specific use in a nonlinear incremental structural analysis (NISA) was developed. This methodology will lead to a vastly improved, less computation intensive, computer model for use by design engineers for predicting and preventing cracking within massive concrete lock and dam structures. Additionally, an innovative method for testing concrete properties at very early ages (even during setup) using fiber optic cables was developed which will allow measurements not previously possible and provide better calibrated numerical material models. Accurately modeling this early time behavior of the concrete as the structure is being constructed will allow the designer to make engineering decisions, such as increasing lift heights, reducing wall thicknesses, and reducing insulation requirements, which will produce more economical structures without jeopardizing reliability and safety.

11. Developed better material selection procedures and specifications coupled with construction procedures to improve the long-term durability of RCC structures. As a result, service life of these structures (nominal 40 years) will be prolonged at least 20 to 25 percent without major rehabilitation.

1986

18 MAR 1996

Appropriation Title: General Investigation, FY 1997

3. Research and Development

a. Materials/Structural Engineering (cont)

12. Construction procedures and criteria were developed for improving the characteristics of horizontal joints in mass concrete structures. This research will result in construction of more watertight structures and prevent the deterioration of the structure due to seepage through joints.

13. Developed effective testing methodologies for screening and selecting optimum quantities of waste byproducts such as Class C fly ash and silica fume for use in civil works concrete. This development will optimize the use of Portland cement in concrete through the substitution of coal ash, reducing by 25 percent the cost of concrete. This also serves to address environmental concerns of the disposal of waste coal ash.

14. Developed laboratory evaluation methods of greaseless bushings, eliminating the need for routine lubrication and removing associated pollution from the Corps lock and dam gates. Evaluated high-performance coatings and durability of fusion-bonded coatings. Developed improved techniques for coating applications. As a result, evaluated ceramic-coated piston rods, the use of which on Corps lock structure would eliminate costly replacement of currently used chrome-plated steel rods.

1987

18 MAR 1996

APPROPRIATION TITLE: General Investigation, FY 1997

3. Research and Development

b. Coastal Navigation and Storm Damage Reduction

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY 1997-2001) Program Cost	$27,800,000
Allocation Requested for FY 1997	5,300,000
Balance to Complete Five-Year Program After FY 1997	22,500,000
Allocation for FY 1996	4,337,000
Increase of FY 1997 over FY 1996	963,000
Average Annual Allocation for FY 1992-1996	5,200,000

FY 1997 ACTIVITY:

The Corps of Engineers' missions in navigation and flood-damage reduction require coastal engineering technology in planning, design, construction, operation, and maintenance of projects for harbors and channels to support both large ocean-going and shallow-draft vessels involved in US and international commerce, coastal structures built for navigation, and flood-damage reduction works. The existing Federal coastal infrastructure includes 800 coastal navigation projects with more than 400 miles of breakwaters and jetties and approximately 100 flood damage reduction and other related coastal projects. Projected planning, design, and construction costs average about $500 million per year for coastal projects. The Federal commitment for existing and Congressionally authorized shore-protection projects over the next 50 years has been projected to exceed $2.7 billion. Additionally, dredging costs required to maintain the Nation's waterways approach $500 million annually. Navigation projects also must be designed so as to not incur Federal liability by producing adverse effects on adjacent shorelines. In supporting these essential missions, the Coastal Navigation and Storm Damage Reduction Research and Development Program develops engineering tools and guidance to plan, design, build, operate, maintain, and mitigate damages associated with the Nation's coastal navigation and flood damage reduction systems. The objective of the Program is to develop technology that reduces the costs of projects and at the same time improves project

1988

18 MAR 1996

3. Research and Development

b. Coastal Navigation and Storm Damage Reduction (cont)

performance. Techniques, equipment, and procedures are developed for determining or predicting waves, currents, water levels, and sediment transport in oceans, lakes, and harbors and their effects on navigation projects and related coastal areas. Major thrusts include coastal hydrodynamics; sedimentation processes; navigation structure; and project design.

1. Hydrodynamic Processes. Waves, currents, winds and elevated water levels are major forces on coastal navigation structures, the main causes of coastal flooding and storm damage to harbors and navigation channels and the principal factors driving sediment transport affecting navigation. Research is underway to reliably and accurately describe and predict coastal hydrodynamics. Wave, current, and water level data are being investigated for use in developing and validating models of coastal phenomena for effective project design based on accurate estimates of forces and design conditions. Methods are being developed to estimate coastal-wave conditions for planning, design, construction, maintenance and operation of coastal structures and mitigation of impacts of navigation structures on adjacent shorelines.

2. Sediment Processes. Knowledge of sediment processes is required to produce cost-effective plans and designs for effective navigation projects, estimate channel shoaling, locate optimum nearshore dredged material placement, determine movement of dredged material deposited in the nearshore, assess the impact of navigation projects and structures on adjacent shorelines, and reduce costs and improve performance of existing flood-damage reduction using sediment nourishment. Technologies are being developed to measure sediment processes, predict storm erosion, and to provide fundamental knowledge required to evaluate alternative strategies for dredge disposal, and minimize or mitigate damages and associated navigation project impacts. Instruments developed to measure sediment transport will be field tested, extreme sediment transport rates will be measured, a large-scale laboratory facility will be designed, constructed, and tested to develop robust long-shore sediment-transport relationships for coastal-navigation project design, and a method for identifying closure depth for improved sediment budget computations will be developed.

1989

18 MAR 1996

APPROPRIATION TITLE: General Investigation, FY 1997

3. Research and Development

b. Coastal Navigation and Storm Damage Reduction (cont)

3. Structure Design. Developing, improving and protecting coastal navigation projects frequently requires constructing structures such as breakwaters, groins, seawalls, revetments, and jetties as additions to the coastal infrastructure. These structures must be able to function in a cost-effective manner while withstanding the forces exerted by waves and currents. Technologies are being developed to predict the stability and functional characteristics of complex structures and to predict the structure's performance. Design criteria for CORE-LOC, the world's most stable navigation-structure armor unit (developed via this Program) will be completed. Reliability-based techniques for coastal structure design to reduce costly overdesign, repair and rehabilitation of coastal structures, design guidance for breakwaters and jetties, and guidance for stone placement in construction of rubble-mound structures will be developed.

4. Project Design. Coastal project design requires the ability to look at the whole project, i.e., the planning, design, construction and operation processes, viable alternatives and optimization, functional performance and project impacts. An integrated computer modeling system for reliable, cost-effective design of coastal engineering projects is being developed to improve design capabilities and allow for efficient, accurate assessment of alternative projects. An improved computer model for harbor design and evaluation and generalized guidance for design of spur jetties at navigation projects and harbor entrances is being developed; the Coastal Engineering Manual (CEM), a state-of-the-art manual which incorporates all the tools and procedures used in planning, design, construction, maintenance, and mitigation of coastal navigation projects, will also continue to be developed.

ACCOMPLISHMENTS IN FY 1996

1. Provided improved validation of major wave models that calculate wave transformation. Validated models are required to accurately predict wave height for design of safe, reliable cost-effective coastal navigation projects. For new structures, improved accuracy of wave height prediction can result in cost savings that exceed $10

1990

18 MAR 1996

million while reducing rehabilitation and maintenance costs by $1 million per year.

2. Analyzed high resolution wave-array data to aid navigation project design on the Pacific coast. Extreme wave energy environments complicate engineering design and require data for development and verification of design tools.

3. Evaluated advanced electronic sensors for measuring sediment transport. Sediment transport data are critical for determining optimum dredging requirements for maintenance of coastal navigation channels.

4. Planned for major interagency experiment on understanding sediment transport. Improved understanding of sediment transport will result in more efficient design and maintenance of coastal navigation projects.

5. Completed fourth and fifth major parts of Coastal Engineering Manual (CEM) on "Coastal Structural Design" and "Planning and Design of Coastal Projects." The CEM will be an updated state-of-the-art replacement for the Shore Protection Manual which has been the "bible" for coastal engineers worldwide.

6. Developed numerical model for design of dolos armor units used to protect navigation breakwaters subject to large waves. The model will reduce costly overdesign and catastrophic failure of structures and has the potential for savings of over $1 million/application.

7. Developed field sensor for measuring suspended sediments. Sediment transport data are required to verify sediment models used in project design.

8. Developed engineering module for cross-shore geometry and sediment requirements for coastal project design.

9. Developed procedures to optimize the design of revetments and seawalls. Advanced

1991

18 MAR 1996

3. Research and Development

b. Coastal Navigation and Storm Damage Reduction (cont)

design of revetments has improved run-up estimates by 25% while new seawall designs have reduced overtopping rates by tenfold. These new designs will result in substantial damage reduction savings.

10. Developed an improved sediment movement model. Prediction of sediment movement is critical to maintaining coastal navigation channels and determining dredged material disposal alternatives.

11. Developed a structural model for concrete armor unit design Improved, optimized concrete armor design can provide significant costs savings of $1 million/application for initial construction and $1 million/year in lower operation and maintenance costs.

12. Developed guidance to identify and minimize effects of seawalls on beaches. Mitigation of impacts of navigation structures on adjacent shorelines is a critical CE role.

18 MAR 1996

APPROPRIATION TITLE: General Investigation, FY 1997

3. Research and Development

c. Flood Control and Navigation

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY 1997-2001) Program Cost	$24,400,000
Allocation Requested for FY 1997	4,700,000
Balance to Complete Five-Year Program after 1997	19,700,000
Allocation for FY 1996	3,803,000
Increase of FY 1997 over FY 1996	897,000
Average Annual Allocation for FY 1992-1996	4,200,000

FY 1997 ACTIVITY

The missions of the Corps of Engineers (CE) in flood control and navigation require timely and cost effective planning, design, construction, operation, and maintenance of these water resource facilities. Although requirements exist for proposed flood control projects to improve flood protection and for navigation channel deepening, widening, and realignment, the major thrust is to improve the operation and maintenance of flood control and navigation channels and structures. Concurrently, these operation and maintenance activities must preserve and enhance environmental concerns. Presently, the Corps of Engineers is responsible for operation and maintenance of thousands of miles of flood control channels and navigation channels. Nearly every flood control channel and most navigation channels have one or more hydraulic structures. The objective of the Flood Control and Navigation Research and Development Program Area is to develop techniques to sustain or improve project performance and reliability, and to reduce costs. Techniques, equipment, and procedures are developed for hydrologic phenomena associated with warm weather, winter, and spring conditions; flood control structures; sedimentation response of flood-control channels; hydraulics of flood control channels; improved conditions for navigating in deep draft and shallow draft channels; bank protection methods for flood control and navigation channels; and ice impacts on flood control and navigation channels and structures. Major thrusts to improve design methodologies, retrofit techniques, and minimize costs of planning, design, construction, operation, and maintenance are:

1. Analytical techniques to define vessel-generated forces which consist of waves,

18 MAR 1996

3. Research and Development

c. Flood Control and Navigation (cont)

return velocities, water level drawdown, and propeller jet velocities will be finalized. Products from this research allow effective evaluation of avoidance and mitigation alternatives for environmental impacts in the design of navigation hydraulic improvements. Riprap design guidance for bank and bottom protection in channels, lock approaches, and embayments against vessel-generated forces resulting from this research leads to optimization of navigation channel protection thereby minimizing first construction and maintenance costs.

2. Field measurements using newly developed technologies will be made of tow and ship sinkage in restricted navigation channels in order to develop more accurate guidance for underkeel clearance required for safe navigation. Since channel depth is a major factor in navigation channel construction and maintenance costs, the potential for saving billions of dollars over many navigation projects can be realized.

3. Techniques will be developed to determine thresholds and impacts of environmental-enhancement measures that accompany flood control channel designs, ensuring that ecological and flood control interests coexist cost-effectively in future Corps construction programs.

4. New alternative streambank protection methods and procedures will be developed for flood control channels where conventional methods such as riprap protection is cost prohibitive.

5. Decrease the frequency of expenditures on clean-up after urban floods due to sediment deposition problems by continuing to develop design guidelines for sediment basins, including physical model testing.

6. The Corps will partner with the US Geological Survey (USGS) and the US Fish and Wildlife service (USFWS) and other state agencies on spatial distribution of snowmelt in the prairie pothole region of the Missouri River Basin to improve snowmelt predictive modeling. Continue field assessment of distributed snowmelt algorithms for improved modeling capabilities into the Next Generation (NEXGEN) suite of modules.

1994

18 MAR 1996

APPROPRIATION TITLE: General Investigation, FY 1997

3. Research and Development

c. Flood Control and Navigation (cont)

7. Include a river-ice subroutine in the Stream Analysis Model (SAM), allowing hydraulic computations using SAM to take account of the presence of ice covers and ice accumulations and their related effects on flow resistance, stage, and flow velocity.

8. Include a compilation and description in an Engineer Circular of proven low-cost techniques for ice removal and ice-weakening as measures to prevent damaging ice jams and ice accumulations that can affect Corps projects, municipalities, and private property.

9. The addition of unsteady-flow capability to the Hydrologic Engineering Center's River Analysis System (HEC-RAS) will be sufficiently completed to release for general use. The package will then provide steady and unsteady flow analysis plus several hydraulic design features allowing improved hydraulic design.

10. A framework for resolution of reservoir water management conflicts will be documented with demonstration applications. The framework documentation will be distributed to Corps offices and presented in training courses.

ACCOMPLISHMENTS IN FY 1996

1. Published users manual for hydraulic design package SAM. This family of computer programs will streamline hydraulic calculations for evaluation of flood control channel alternatives in the early-phases of the planning process, saving an average of $30,000 per study or $1,500,000 in 1997.

2. Completed development of design guidance for riprap end section design for bank protection. This new design will minimize long term project maintenance costs and is estimated to save $200,000 annually.

3. Completed guidance on bend-way weir design in shallow-draft navigation channels to include spacing and angle, giving field offices the opportunity to determine potential applications in their regions, expanding the opportunity for national benefits from bend-way weirs. Estimated savings on weirs already constructed is $400,000 per river bend per year in reduced dredging, $720,000 per river bend per year in reduced traffic delays, and

1995

3. Research and Development

c. Flood Control and Navigation (cont)

$230,000 per bend per year in environmental benefits for a total annual savings of $1,350,000 per bend-way.

4. Revised EM 1110-2-1601 to include guidance for riprap toe and end section design. Designers will benefit from additional guidance in the manual and will not have to design for overly conservative conditions. Also initiated training workshops to give field offices the opportunity to determine potential applications in their regions, expanding the opportunity for national benefits from improved riprap design.

5. Provided improved numerical tools and mesh development guidelines for conducting ship simulator studies for navigation channel design. Tools provided by this research have substantially reduced the time and cost associated with the determination of currents for ship simulator studies. Quality enhancements allow for more accurate evaluations of navigation channel hydrodynamic. Over 60 simulator studies have been conducted on major projects resulting in savings of over $200 million; some projects have savings/cost ratios of 75:1. These improved tools provide a potential for additional savings for future studies and the ability to conduct higher quality studies using these products.

6. Developed and tested Differential GPS techniques for measuring with centimeter accuracy the vertical and horizontal motions of ships in navigation channels. Review of available methods for predicting ship sinkage in restricted channels was completed. It is obvious from this analysis that better methods are needed for accurate channel depth design. Use of DGPS techniques will be applied to acquire the necessary data to optimize channel depth and save on navigation project costs and dredging quantities.

7. Developed design guidance for selecting roughness coefficients for various plant species commonly planted in overbanks of flood control channels. This will reduce the uncertainty associated with water surface elevation calculations. The direct result will be lower levee heights and reduced channel excavation. Quantification of this savings will vary widely depending on the scope of the project and the existing level of roughness uncertainty. Using economic data from a flood control levee project for Chester Creek,

1996

18 MAR 1996

3. Research and Development

c. Flood Control and Navigation (cont)

PA, it can be shown that an increase in the reliability in the roughness calculation would result in a project levee height which was one foot lower, and would result in a 25% savings (approximately $500,000) in the construction cost.

8. Provided interim guidance on predicting currents and drawdown created by vessel passage. Quantification of forces coupled with biological impacts provides decision support for effective ecological planning. Design of riprap protection for vessel-induced forces resulted in a potential first cost-savings in just one new lock approach of $5,500,000. Design of riprap for propeller jet impacts in small bays and harbors has potential for reducing first costs up to 50% while protecting the environment from resuspension of contaminated dredged materials.

9. Completed development of test procedure standards for proprietary products for streambank protection used in flood control channels. This guidance will allow field offices to have criteria for evaluating non-conventional, less expensive streambank protection designs.

10. Completed development of design guidance for determining the proper discharge to be used to expeditiously evaluate alternative hydraulic designs for flood control channels incorporating various types of environmental enhancements. This guidance provides a critical element to the stable channel design methodology in SAM. This simplified hydraulic design method provides for rapid design and evaluation of alternatives in the early stages of the planning process and results in significant savings in project cost and time. Study time and cost was reduced about 90% on one study in the Huntington District.

11. Completed development of guidance for debris control techniques at hydraulic structures to prevent serious operational problems and threats to structural integrity. Benefits will result from long term reduction in O&M costs. The estimated savings is $200,000 annually.

3. Research and Development

c. Flood Control and Navigation (cont)

12. Completed development of gravel-bed transport function for design of sediment basins and completed review of existing methods for sediment basin design. Improved reliability in sediment yield during floods reduces uncertainty and required storage by about 25%.

13. Completed field validation of distributed snowmelt modeling algorithms using the concept of identifying similar hydrologic snowmelt units at the watershed scale in the CE & USGS Sleepers River Watershed Study Site. This will lead to inclusion of better snowmelt prediction tools in operational decision models for use in responding to snowmelt induced floods such as experienced during the winter of 1995.

14. Inclusion of the SYNTHERM snowmelt algorithm into the HEC NEXGEN model, providing the Corps with the best technical algorithm to date for computing snowmelt. The benefits: 1) improved snowmelt predictions will enable CE forecasters to more closely estimate the volume of melt providing predictions where better information on flood levels, timing of the peak level, and adequate warning for residents are needed and 2) it will decrease the chance for incurring a liability claim because the CE is using the state-of-art technology for its predictions. SYNTHERM has already been distributed to 77 users outside CE, including 10 countries, with excellent reviews. Floods caused by rapid snowmelt, such as those occurring during the winter of 1995 are a major cause of flood damage. Prediction of flows resulting from snowmelt is also useful in operations such as those in Bosnia.

15. The beta edition of the Hydrologic Modeling System (HEC-HMS) was released for general testing. Database and graphics linkage was further developed. After testing, Version 1.0 was released for general use. Use of this system will improve river channel flow predictions and result in more efficient design of waterway improvements.

16. The Flood Damage Analysis (HECFDA) program was released for beta testing and presented in training courses. After testing, Version 1.0 was released for general use providing a Windows-style package integrating H&H study outputs with a structural inventory database, elevation-damage computations with uncertainty, and expected annual damage computation. Use of this program will result in more accurate flood damage and damage reduction estimates which will yield better project benefit estimates.

3. Research and Development

c. Flood Control and Navigation (cont)

17. A surface reservoir module has been connected to the USGS finite-difference groundwater flow model MODFLOW. The user documentation for the reservoir algorithm was completed and published as a joint USGS-USACE publication. This modeling system will allow more accurate estimates of reservoir/groundwater interactions and improved reservoir management.

18. A framework for resolution of reservoir management conflicts is being developed. Test applications of the framework to a Corps project were made, and the procedures were modified based on application experience. These procedures will result in improved reservoir management decisions allowing the Corps to better meet all project objectives.

19. The capabilities of a water balance accounting program (WEAP) were expanded to better meet Corps needs for system evaluation. Demonstration applications were made and documented, and a final report and ETL were prepared. This program will improve basin management decisions.

20. Completed documentation and reporting, in the form of an Engineer Circular, on the effects of ice on hydraulic forces that impact on riprap, along with design considerations for riprap structures. This overcomes the lack of prior quantitative guidance for the design of riprapped surfaces subject to ice action. Designers will be able to select stone sizes and riprap layer thicknesses that will withstand ice attack, based on common measures of winter severity and local site characteristics. This will allow optimization of riprap design in areas subject to ice formation.

21. Presented guidance in an Engineer Circular on the selection, siting, and design of low-cost ice-control structures for addressing ice jam breakup which produces flooding on smaller rivers. Reduction of ice-jam flooding may not have been feasible with more traditional and costly structural flood-control techniques; however, with this new technology, such projects will now be amenable to practical and economic control.

22. Concluded formulation of principles, models, and equations for the analysis of ice effects on the behavior of movable bed channels and presented this information in an Engineer Manual chapter. The new Engineer Manual chapter provides river engineers with a

1999

18 MAR 1996

3. Research and Development

c. Flood Control and Navigation (cont)

means for determining sediment transport, suspended load, and erosion/deposition characteristics in rivers when ice is present. Formerly, the ice-affected season was largely neglected on the belief that bed and bank erosion were negligible; since findings emerged to the contrary, the need for computational tools and analysis was unfulfilled until now. Use of this design guidance provides the tools necessary to reduce bed and bank erosion.

23. The final report on applications of existing urban H&H models was published. Guidance on application of non-Corps models for various Corps studies were provided. Use of this guidance will allow the Corps Districts to select the most appropriate models for studies they are conducting.

2000

18 MAR 1996

APPROPRIATION TITLE: General Investigation , FY 1997

3. Research and Development

d. Environmental Quality

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY 1997-2001) Program Cost	$21,400,000
Allocation Requested for FY 1997	4,000,000
Balance to Complete Five-Year Program after FY 1997	16,400,000
Allocation for FY 1996	3,337,000
Increase of FY 1997 over FY 1996	663,000
Average Annual Allocation for FY 1992-1996	4,000,000

FY 1997 ACTIVITY

The Corps operates and maintains 25,000 miles of inland and coastal waterways, 235 navigation locks, 114 major ports, 442 lakes and reservoirs, 73 hydropower projects and 879 flood control projects as part of its water resource mission. A critical part of this mission is to insure that the planning, construction, operation and maintenance of public works projects does not cause adverse impacts to the environment. The Environmental Quality Research Area provides state-of-the-art guidance to predict and minimize environmental impacts of Civil Works Water Resources Development projects as well as for developing and demonstrating practical engineering and resource management strategies, providing cost-effective technologies for managing natural resources and recreation facilities at Corps projects, and for resolving project-related water quality and quantity problems. The approach of this program is to develop and implement more accurate, rapid, and economical solutions to these ever-changing problems and thereby reduce unnecessary regulatory burdens and provide the greatest return on taxpayer investment. Proposed FY 1997 activities include:

1. Investigate the distribution and life history of endangered sturgeon species to prevent unnecessary closure/interruption of Corps structures/activities.

2001

18 MAR 1996

APPROPRIATION TITLE: General Investigation, FY 1997

3. Research and Development

d. Environmental Quality (cont)

2. Develop and demonstrate low-cost bioengineering concepts for streambank erosion control as an alternative to more expensive, hardened engineering alternatives.

3. Provide guidance on selecting, installing, and maintaining vegetation in and along flood control channels that maximizes habitat quality without jeopardizing channel stability.

4. Determine the effectiveness of new mapping technologies in providing accurate, rapid, and cost-effective assessments of aquatic habitats. This information is necessary to determine impact effects of past and future activities by private or Government entities.

5. Develop interpretive guidance input for the Environmental Protection Agency/Corps of Engineers (EPA/CE) National Management Strategy for Dioxin-Contaminated sediment. Guidance is especially needed in most major port complexes in the U.S.

6. Refine guidance on nonpolar organic contaminants in dredged and suspended sediments with regard to effects on aquatic organisms. Results will provide the Corps with a basis for a more scientifically valid approach to presently proposed sediment quality criteria.

7. Continued technical input refinement and development of the EPA/CE Inland Testing Manual for dredged material disposal. This programmatic guidance provides consistent, practical, cost-effective guidance for the continued maintenance of navigation channels.

8. Provide continued technical guidance and updating for the national bioaccumulation database. This database will provide cost-saving environmental evaluations for dredged material disposal.

9. Conduct field verification testing of the chronic/sublethal laboratory bioassay to allow for continued disposal of contaminated dredged material in the most cost-effective manner.

18 MAR 1996

2002

3. Research and Development

d. Environmental Quality (cont'd)

10. Develop techniques that improve the collecting and managing of recreation user fees to reduce cost and encourage use of Corps projects.

11. Develop relationships to describe the fundamental processes affecting water quality and the biotic structure of aquatic systems. The improved understanding of these processes is essential in the development of cost-effective management techniques used at public water resource projects.

12. Provide capability to accurately and efficiently integrate environmental and water quality considerations with other project purposes. This work will provide CE reservoir managers the necessary tools to make cost-effective decisions about water resource project operations and their impact on water quality and the environment.

ACCOMPLISHMENTS IN FY 1996

1. Developed and tested guidance on innovative bioengineering technologies for streambank erosion control. This work offers the potential for significant savings compared with hardened engineering alternatives.

2. Completed all sections (95) of the Corps' comprehensive wildlife management manual, already a widely used document within the Corps and numerous other agencies.

3. Continued the development of assessment techniques for dredged material Confined Disposal Facilities(CDF's) to predict the potential for leachate (groundwater) contamination. These techniques, once developed, should control future cost escalations in regulatory requirements for leachate control measures at CDF's.

4. Developed interpretive guidance on the consequences of toxic substances from contaminated sediments, on freshwater organisms to prevent impacts to aquatic resources.

5. Refined guidance on biological effects of interactive sediment contaminants. This information will provide updated guidance on management of sediments containing multiple contaminants of concern.

2003

18 MAR 1996

APPROPRIATION TITLE: General Investigation, FY 1997

3. Research and Development

d. Environmental Quality (cont'd)

6. Continued the development of a protocol for genotoxicity testing on aquatic organisms. This new technology will allow for accurate testing of sediment contaminant impacts on fish and other aquatic organisms.

7. Conduct laboratory simulations of selected control technologies for Polyaromatic Hydrocarbons (PAH's). These methods are required for the safe disposal of petroleum contaminated sediments.

8. Developed techniques and computer software for assessing basin-wide impacts of reservoir operation on downstream aquatic resources. This information is currently unavailable and critical in planning remedial actions to correct project-related problems involving aquatic resources.

2004

18 MAR 1998

APPROPRIATION TITLE: General Investigation, FY 1997

3. Research and Development

e. Water Resources Management

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY 1997-2001) Program Cost	$ 9,400,000
Allocation Requested for FY 1997	1,800,000
Balance to Complete Five Year Program after FY 1997	7,600,000
Allocation for FY 1996	1,505,000
Increase of FY 1997 over FY 1996	295,000
Average Annual Allocation for FY 1992-1996	1,800,000

JUSTIFICATION:

The Water Resources Management Research Area includes research and development activities leading to improvements in the methods which provide the basis for how Civil Works established business practices are planned, operated, managed and mantained. Current research emphasis within this program focuses on three principal areas. The first involves integration of environmental, engineering, and social sciences to develop planning methods that enable the Corps to make sound decisions about water resources investments. Research outputs range from methods for facilitating public involvement in water resources planning to mathematical models and evaluation frameworks for formulating flood damage reduction projects. The basic objectives of this research area are to increase the knowledge and understanding of the physical, economic, social and environmental relationships inherent in planning for the development of the Nation's water resources and to develop procedures for incorporating this knowledge into the planning process in a way that provides better professional, public and governmental decisions without increasing planning costs or time. The program is continuous, but its specific focus at any given time is dictated by problems and needs resulting from changes occasioned by legislative mandates such as WRDA 86, subsequent WRDAs and the Government Performance and Results Act.

A second research focus within this research area is research on advancement of Civil Works Program and Project Management techniques. Project Management (PM) philosophy has become the primary vehicle for managing the Corps of Engineers project delivery process. The Corps PM system functions in a unique environment adopted for the USACE organization

2005

18 MAR 1996

3. Research and Development

e. Water Resources Management (Cont)

structure and Civil Works processes. With a strong technical orientation and team/partnering perspective, it embodies many facets not typically found in other organizations which employ standard modern day PM techniques. Consequently the application of generalized PM tools and techniques which have been developed for private sector applications rarely can be incorporated off the shelf. There is a need to provide Corps PMs with tools that meet the requirements of the Corps environment. This research focus is intended to enhance the effectiveness and efficiency of the practice of project management in the Corps of Engineers.

The third area focuses on the Corps of Engineers mission responsibilities in the construction and operations and maintenance (O&M) of water resource facilities, including navigation channels, locks, dams, reservoirs, powerhouses, waterways, levees, floodwalls, bridges, roads, recreation facilities, and coastal works. Operating and maintaining these water resource projects consumes the efforts of more than half the Corps Civil Works personnel and an ever-increasing percentage of the total Civil Works budget. In order to continue to accomplish these construction and O&M functions in an environment of fiscal and manpower constraints without diminishing service, health, or safety, a broadly based research effort is urgently needed to provide new or improved methods and techniques to increase efficiency and save manpower and funds while retaining or improving reliability, safety, and overall effectiveness of each project. The objective of this research area is to provide measurable means for reducing costs and increasing efficiency of all areas of operations and maintenance management, including budgetary and economic issues that can be most effectively addressed at appropriate levels within the O&M arena.

<u>FY 1997 ACTIVITY</u>:

1. Update economic evaluation manuals.

2. Develop plan formulation and evaluation techniques for multi-agency watershed planning studies.

3. Continue development of new procedures for formulating and evaluating non-structural flood damage reduction plans including flood plain evacuation.

18 MAR 1996

2006

3. Research and Development

e. Water Resources Management (Cont)

4. Develop a practical system for measuring the progress of project development and program execution suited to the situation and needs of programs and project management in the Corps.

5. Develop and field test practical, behavioral techniques for project managers to use in managing the project expectations of their Civil Works and environmental customers.

6. Perform an assessment of project team working relations for the purpose of identifying problems and opportunities to be addressed in techniques of project leadership.

7. Development of operations and maintenance performance measurement system to enhance the ability to accurately measure project operations and maintenance performance. The Government Performance and Review Act of 1993 provides the general framework, but this performance measurement system will provide the tools to measure the improved performance of the Corps O&M.

8. Development of methods to integrate project condition indices, performance indicators and incremental economic maintenance analysis which will enhance project management systems at all Corps levels while offering less costly activity measurement. These methods of integrating existing maintenance management tools into a single comprehensive system, will increase the effective, efficient maintenance of Corps projects.

9. Development of the capability for improved post-construction operations and maintenance estimates to ensure the best quality estimates to the Corps and its cost-share partners. Increased accuracy of operations and maintenance estimates will give the Corps' cost-share partners an enhanced planning tool by which better long term operations and maintenance investments can be budgeted.

10. Development of reliability analysis methods for Corps-owned hydropower equipment which will result in improved preventive maintenance scheduling and a marked reduction in unscheduled, costly outages. This research will provide a means for statistically

3. Research and Development

e. Water Resources Management (Cont)

estimating service life and generate probabilities of potential failure so that the likelihood of unplanned outages can be significantly reduced, thereby increasing service life of hydropower components and providing increased reliability of hydropower available to the Corps' customers.

ACCOMPLISHMENTS IN FY 1996:

1. Completed revised National Economic Development Evaluation Procedures Manual for urban flood damage reduction projects.

2. Completed Water Resources Plan Formulation Manual.

3. Completed assessment of alternative evaluation frameworks for non-structural flood damage reduction projects.

4. Completed flood damage evaluation procedures manual for business properties.

5. Completed guidelines for project study plan development.

6. Completed report on watershed planning techniques.

7. Completed report on evaluation techniques for flood plain evacuation and other non-structural alternatives.

8. Completed assessment on collaborative decision making processes for water resources planning.

9. Performed an assessment of the technical requirements and current practices of project management in the Corps to determine the order of needs for advancement in techniques and tools.

18 MAR 1996

2008

APPROPRIATION TITLE: General Investigation, FY 1997

3. Research and Development

e. Water Resources Management (Cont)

10. Developed objective technical specifications for a system of measuring progress of the project development process using an earned value derived metric allowing program level analysis.

11. Performed an assessment of project customer relations for the purpose of identifying fundamental problems and opportunities to be addressed in a method for managing customer expectations.

12. Developed current year-operations, budgeting, and execution tracking for improved operations management technology. The current year budget execution system will increase the ability of District team members to identify and correct potential problems in a timely manner. Such early detection and correction is estimated to save a significant percentage of the O&M funding at each District.

13. Completed the development of resource allocation decision tools for hydropower and navigation operations management technology. Improvements in estimating service life of components and probability of hydroelectric facility failures will allow the Corps to improve replacement priorities and increase confidence in scheduling major rehabilitation and maintenance. Cost avoidance at a single hydroelectric plant due to unscheduled outages is conservatively estimated at over $1,500,000. Significant lost revenue from the Power Management Authorities to the Federal General Treasury could also be avoided.

14. Completed guidance for Corps local sponsor maintenance operation. This guidance will improve the description of the financial resources necessary for local sponsors to operate and maintain projects while meeting federal standards and goals. Increasing the confidence of local sponsors to better estimate and execute their operation and maintenance responsibilities will reduce the number of substandard projects for which the Corps must rehabilitate and thereby providing cost avoidance estimated at $10,000 to $20,000 per project.

APPROPRIATION TITLE: General Investigation, FY 1997

3. Research and Development

f. Surveying and Remote Sensing

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY 1997-2001) Program Cost	$8,800,000
Appropriation Requested for FY 1997	1,700,000
Balance to Complete Five-Year Program after FY 1997	7,100,000
Allocation for FY 1996	1,371,000
Increase of FY 1997 over FY 1996	329,000
Average Annual Allocation for FY 1992-1996	1,600,000

JUSTIFICATION

The Surveying and Remote Sensing Research Area includes research, development, testing, and evaluation activities necessary for new technology in remote sensing, surveying and mapping and other spatial data management needs to improve Corps mission performance and minimize costs. The remote sensing portion of this program is designed to explore fully the numerous technical and economic capabilities that are becoming available from satellite, airborne and in situ sensors for cost-effective application to the Corps planning, engineering, operations, and maintenance missions. Activities to be addressed include consideration of spatial and temporal data element interpretation techniques, data handling, and the coat-effective and efficient incorporation of remotely sensed acquired data to water and natural resources and management models. In addition, the Corps is exploring the use of precise measurement and positioning capabilities to support the dam safety program, hydrographic surveying, dredge positioning tasks, broadly-based ecosystem for watershed investigations and regulatory management purposes. Computer aided drafting and design software to fully interface the Corps surveyor to the CADD system is also being developed.

FY 1997 ACTIVITY

1. Continue development and testing of software and hardware techniques to integrate remotely sensed data (from numerous satellite and aircraft systems) into Corps hydrologic, environmental and economic models.

18 MAR 1996

2010

3. Research and Development

f. Surveying and Remote Sensing (cont)

2. Complete development of industry standards for the calibration of single transducer multi-beam systems.

3. Continue development of remote sensing techniques to yield precise coastal engineering data. Publish Corps-wide guidance for the planning, design, execution and analysis of coastal mapping surveys.

4. Test and evaluate automated procedures for the integration of in situ data, hydrologic data and environmental parameters into Corps real-time spatial data storage and management systems.

ACCOMPLISHMENTS IN FY 1996

1. Developed and distributed integrated Water Control System which enables access to remotely sensed data (e.g., satellite imagery and NEXRAD), GIS, Oracle, HECDSS and modeling environments. This technology will significantly increase the response capabilities of the Emergency Operations Program with the added benefits of increased public awareness and understanding of alternative plans.

2. Initiated Corps-wide implementation of direct access to Weather Services generated NEXRAD data through software programs developed under this research program.

3. Developed visualization techniques for mapping of forecasted flood inundation from Corps models.

4. Tested and evaluated alternative procedures for cost-effectively applying satellite and aircraft data for measuring the characteristics of the snowpack for more timely and accurate prediction of the spring runoff.

5. Developed read/write random access image processing techniques using optical media to store and retrieve information in real-time for civil works planning, engineering, and operations activities.

18 MAR 1996

2011

APPROPRIATION TITLE: General Investigation, FY 1997

3. Research and Development

f. Surveying and Remote Sensing (cont)

6. Developed transparent network access of spatial and temporal data for Corps land use planning and mapping requirements.

7. Developed transparent conversion techniques for transferring commercial image formats into Corps compatible files for district civil works spatial data management applications.

8. Developed detailed specifications for dam deformation using GPS and conventional measurements at half the cost of present methods.

9. Distributed software to the field operating activities to assist with data transformation between computer systems, and geodetic datum.

10. Developed an accepted new Global Positioning System (GPS) application for the measurement of water levels used for tidal datum

11. Developed a procedure to utilize GPS measurements for vertical positioning to an accuracy comparable to spirit levelling.

18 MAR 1996

2012

APPROPRIATION TITLE: General Investigation, FY 1997

3. Research and Development

g. Risk Analysis for Water Resources Investments

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY 1997-2001) Program Cost	$6,700,000
Allocation Requested for FY 1997	1,300,000
Balance to Complete Five-Year Program after FY 1997	5,400,000
Allocation for FY 1996	1,054,000
Increase of FY 1997 over FY 1996	246,000
Average Annual Allocation for FY 1992-1996	1,200,000

JUSTIFICATION:

The Risk Analysis for Water Resources Investments research program includes research and development to improve the techniques and information for making decisions in the planning, operation, and management of the Corps water resources infrastructure. The need for risk-based decision making tools extends across all of the functional areas with the Corps and across all project outputs. Budget constraints, increased partner cost sharing and public concern for project and system performance and reliability requires the development of new methods and analytical techniques. This risk and uncertainty (R&U) information will be used explicitly in decision making. The program includes: (a) research into specific areas of planning, (b) initiation of operations related risk-cost analyses and risk based benefit-cost analysis, and (c) development of R&U methods for engineering evaluations. The fundamental objective of the program is to improve decision-making in the planning, design, operation and management of the Corps' water resources program. The research and development program includes the development and application of risk analysis techniques to a variety of issues and problems faced in the Corps' water resources planning, engineering, design, and operations. The program recognizes the need for coordinated effort across all the functions of planning, engineering, and operations.

FY 1997 ACTIVITIES:

1. Complete final report on reliability analysis methods of pile founded structures for use in the evaluation of major rehabilitation alternatives for existing projects.

18 MAR 1996

2013

APPROPRIATION TITLE: General Investigation, FY 1997

3. Research and Development

g. Risk Analysis for Water Resources Investments (cont)

2. Complete quantification of changes in structural reliability of steel and concrete due to impact loading over time for use in the evaluation of major rehabilitation alternatives for existing projects.

3. Complete development of structural reliability model for U-framed structures and reliability model for dams for use in the evaluation of major rehabilitation alternatives for existing projects.

4. Distribute software and users manual and modify training for enhanced version of software tool for evaluating major rehabilitation proposals incorporating risk, engineering reliability, and economic costs and benefits.

5. Enhance, extend, and distribute software tools for combining hydrologic, hydraulic, geotechnical and economic uncertainties and quantifying engineering and economic reliability of flood damage reduction projects.

6. Begin development of systems framework and identify software tools for evaluating and combining the uncertainties in engineering and economic performance of deep draft navigation channel improvements.

ACCOMPLISHMENTS IN FY 1996:

1. In order to assemble information and data to be used in performing risk analysis for evaluating major rehabilitation project alternatives, several efforts have been accomplished. They are:

a. Completed calibration of steel pile reliability model and initial reliability assessment method for pile groups with loss of support for pile founded structures for use in the evaluation of major rehabilitation alternatives for existing projects.

b. Completed quantification of changes in structural reliability due to steel cracking and concrete overstressing for use in the evaluation of major rehabilitation alternatives for existing projects.

2014

10 MAR 1996

3. **Research and Development**

g. **Risk Analysis for Water Resources Investments (cont)**

c. Completed development of structural reliability model for approach walls on timber cribs of navigation gravity structures for use in the evaluation of major rehabilitation alternatives for existing projects.

2. This information and data have been incorporated into analysis methodologies and tools for an initial version for evaluating major rehabilitation proposals incorporating risk engineering reliability and economic costs. Some of the tools developed include software, manuals, and training.

3. Developed and distributed software and setup training for performing advanced Monte Carlo simulations to quantify economic uncertainties for flood damage reduction project formulation and evaluation. Also developed methods for estimating geotechnical reliability of flood control structures. These were incorporated into analysis methods and tools for flood damage reduction plan formulation and evaluation, combining the hydrology, hydraulic, and economic uncertainties. These tools include software and training.

4. Extended applications of advanced prototype Monte Carlo simulation model for major rehabilitation evaluation to inland navigation structures.

5. Completed development draft technical procedures for incorporating uncertainties in the evaluation of inland navigation system project replacements and improvements.

6. Distributed completed software, user manual, and technical appendices of computer model to estimate the efficient channel reliability-cost tradeoff and benefits for use in navigation channel planning and annual maintenance dredging budget development.

7. Distributed completed software, user manual, and technical appendices of computer decision support system (DSS) model for support of maintenance dredging allocation and routing decisions incorporating uncertainty of channel depth and economic costs.

18 MAR 1996

2015

23-577 96 - 64

APPROPRIATION TITLE: General Investigation, FY 1997

4. Earthquake Engineering

SUMMARIZED FINANCIAL DATA:

Estimated Program Cost	$17,000,000
Allocation requested for FY 1997	2,000,000
Balance to Complete After FY 1997	11,179,000
Allocation for FY 1996	1,482,000
Increase of FY 1997 over FY 1996	518,000

JUSTIFICATION:

The Corps may be required to expend more than $10 billion in remediation costs to assure adequate seismic performance of its 580 dams unless advancements continue to be made in earthquake dam safety analysis. This program is the only significant federal R&D focused on eliminating inadequacies in present seismic safety evaluation knowledge for dams and their intake-outlet control structures. Most Corps dams were built in an era when seismic hazards were not recognized and poorly understood. Two hundred high hazard dams and 73 of the intake towers that control water release from Corps dams have been identified as subject to severe earthquake shaking. Expensive remediation actions are being considered for a number of Corps dams, and the number is rising due to an increased seismic threat in the western U.S. Approximately, all 73 intake towers would be judged inadequate with today's analysis techniques. Remediation design procedures are necessarily conservative (and consequently more expensive) to overcome shortcomings in the state-of-the-art in earthquake engineering. The Earthquake Engineering Program offers vast cost savings in seismic remediation efforts by performing focused research to ensure that safe dams are not remediated and that dams that are unsafe are remediated as quickly, efficiently, and cost effectively as possible.

2016

4. Earthquake Engineering (cont)

Past Corps research in earthquake engineering has led to the ability of the Corps to remediate seismically unsafe dams instead of direct replacement. Realized savings from recently completed remediation at Sardis Dam, Mississippi, resulted in economic savings of more than $200 million for replacement of a main portion of the dam. At Mormon Island Auxiliary Dam, part of the Folsom Dam Project, California, remediation saved more than $10 million for replacement of a portion to $600 million for replacement of the entire dam. What is still needed is clearer identification of dams that will be damaged, the extent of this damage, and less costly yet dependable remediation actions.

In spite of major advances over the last 25 years, serious gaps in our knowledge base still exist in the areas of earthquake hazard predictions, site characterization for seismically sensitive parameters, material behavior and mechanical properties of rock, soils, concrete, and composite (reinforced) materials under seismic loads, and the stress and deformation responses of sites and facilities to seismic loading. Economical remediation and defensive design techniques can be developed if these gaps in our knowledge base are significantly reduced, and fast advancing numerical methods are verified and validated based on actual field performance. Part of such calibration includes rapid deployment of research teams to investigate sites of earthquake damage and collect and monitor transient data. In addition, some of these same monitoring techniques can be developed for use in immediate urban search and rescue efforts in damaged areas, a mission of the Corps in the Federal Response Plan. In order to address these issues, the Corps is executing a research program which will produce the required design tools and criteria which incorporate innovative measures for assuring the seismic safety of Corps facilities.

2017

Appropriation Title: General Investigation, FY 1997

4. Earthquake Engineering (cont)

This program establishes the basis for Corps criteria to evaluate the seismic adequacy of dams and intake-outlet structures, and results in-the development of reliable, specialized design and analysis tools to predict the potential for extensive earthquake induced damage to these facilities. The program products include software and manuals for their use, and advanced procedures that will allow us to more clearly distinguish between safe and unsafe dams, and to remediate unsafe dams as quickly, efficiently, and cost effectively as possible. This is the only significant federally funded R&D program focused on seismic safety of dams. Past R&D investment on this topic has already resulted in construction savings well in excess of the total cost of this program.

FY 1997 ACTIVITY:

The Earthquake Engineering Research Program addresses both the geotechnical and structural aspects of water resource facilities with participation by other federal and state agencies and academic and professional experts. The FY 1997 activities include:

1. Geotechnical: Development of (a) criteria for selecting design earthquake ground motions and characterizing earthquake input required for analysis of their impact on the design of new and remediation of existing water resource facilities, (b) cost-effective, reliable methods to determine site characteristics relevant to seismic performance, to map the extent of potentially liquefiable materials subject to ground failure and to determine the adequacy of remedial actions such as foundation improvement construction, and reliable, nonlinear analysis methods to determine the capacity of earth structures to resist damage and predict extent of damage when subjected to seismic stresses and large, earthquake-induced deformations.

2018

18 MAR 1996

Appropriation Title: General Investigation, FY 1997

4. Earthquake Engineering (cont)

2. Structural: Development of (a) methods of analysis to predict the extent of damage and ultimate capacity of conventionally placed and roller-compacted concrete gravity dams, arch dams, and reservoir intake-outlet structures subjected to strong earthquake ground motions, (b) least cost remedial measures to strengthen these dams and structures if necessary, (c) a material model for predicting nonlinear structural response caused by cracking and large displacements in concrete materials,(d) methods for structure-reservoir-foundation interaction analyses that include hydrodynamic effects of the reservoir, uplift pressures beneath the dam, and interaction of the concrete dam with the surrounding rock foundation.

ACCOMPLISHMENTS IN FY 1996:

Significant accomplishments in FY 1996 included: improved guidelines and procedures for selecting and processing ground motions for engineering analysis; advances in site characterization procedures for in situ dynamic strength tests; completed laboratory, centrifuge, and physical model experiments that advanced state-of-art for analyzing dams and outlet structures. These research accomplishments were presented at workshops and in technical publications.

2019

1 8 MAR 1996

APPROPRIATION TITLE: General Investigation, FY 1997

5. Zebra Mussel Control Research Program

SUMMARIZED FINANCIAL DATA

Estimated Program Cost	$13,100,000
Allocation Requested for FY 1997	1,500,000
Balance to Complete After FY 1997	5,775,000
Allocation for FY 1996	741,000
Increase of FY 1997 Over FY 1996	759,000

JUSTIFICATION:

The zebra mussel (Dreissena polymorpha), first reported in the United States in 1988, was accidentally introduced from Northern Europe via ballast water from ocean going vessels. By 1990, the zebra mussel had spread through the Great lakes into the inland waterways of the Illinois River. By 1992 it had spread throughout the Mississippi River Basin down to New Orleans, LA. Encrustations of zebra mussels restrict and can totally obstruct raw water intake systems, including those associated with navigation, power, water treatment, and water control structures. Public facilities along the Great Lakes and the upper Mississippi River spend $100s of millions annually on zebra mussel control. This cost will increase to the billions as numbers increase in the lower Mississippi and they spread to southeastern and western states. Methods of prevention and more effective, inexpensive methods of control must be developed.

The Corps of Engineers is the only Federal Agency directed to conduct R&D for the control of zebra mussels and their effects on public facilities. The Zebra Mussel Research Program (ZMRP) is authorized by the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (PL101-646). The development of strategies to apply control methods involves engineering design, operations, and maintenance of facilities and structures. Control

2020

5. Zebra Mussel Control Research Program (cont)

strategies are being developed for (a) navigation structures; (b) hydropower and other utilities; (c) vessels and dredges; and (d) water treatment, irrigation and other control structures.

FY 1997 ACTIVITIES:

1. Development of Control Methods and Strategies. Final guidance on the use of antifoulant coatings will be distributed to the field. Sonication and carbon dioxide treatments will be field demonstrated as methods for prevention. Technical guidance will be distributed on the use of continuous backwash filter systems for intakes. A preliminary survey for biocontrol agents in Europe will be initiated. An evaluation of available chemical control methods will be conducted.

2. Evaluation of Ecological Factors Affecting Zebra Mussel Control Strategies. Techniques for assessment and prediction of zebra mussel population growth are being developed to support proactive implementation of control strategies. Biological indices are being developed to characterize natural seasonal shifts in zebra mussel conditions to determine the best timing of control methods.

3. Coordination and Technology Transfer. A host of other organizations (Federal, state, and local agencies; the power industry; and municipal water supply companies) manage public facilities which are impacted by the zebra mussel problem. Coordination of ZMRP results is accomplished through the Zebra Mussel Coordination Committee (established under PL 101-646) which is made up of Federal and regional organizations involved in zebra mussel research, operations and education. The Corps also co-sponsors an annual workshop for facility operators and managers to transfer the results of the ZMRP to the public. A Technical Notes publication series, which describes products and

18 MAR 1996

2021

5. Zebra Mussel Control Research Program (cont)

recommendations developed under the ZMRP, reaches over 2000 subscribers.

ACCOMPLISHMENTS IN FY 1996:

1. Development of Control Methods and Strategies. Provided guidance on filtration as a means of zebra mussel removal in service water. Distributed to the field the first edition of the microcomputer-based information system for identification of zebra mussels and determining risk of infestation for facilities. Evaluated piping system and intake designs that minimize zebra mussel infestations. Published information on tolerance of zebra mussels to low oxygen and high carbon dioxide concentrations. This information will be used to develop control strategies. Demonstrated feasibility of using magnetic fluid conditions in partnership with Entergy, Inc., (region power industry) to control zebra mussel infestations. Began overseas surveys for biocontrol agents for zebra mussels in Europe. If biocontrol agents prove to be a viable control method, there will be a substantial reduction in control cost when compared to some other options. Evaluated moluscaside, hydrothol 191, as a chemical control method. Finding a chemical control option that is environmentally friendly will dramatically reduce expenditure for control compared to many other methods.

2. Evaluation of Ecological Factors Affecting Zebra Mussel Control Strategies. Working cooperatively with the Environmental Protection Agency to identify and reduce impacts of zebra mussels on the upper Mississippi aquatic ecosystem. Assessed impacts of zebra mussels on water quality in a river system. Allows researchers to make decisions on how to offset the potential negative impacts of zebra mussels on river systems.

2022

18 MAR 1996

5. Zebra Mussel Control Research Program (cont)

3. Coordination and Technology Transfer. Conducted national conference co-sponsored by TVA, Bureau of Reclamation, U.S. Fish and Wildlife, Ontario Hydro, Entergy, Sea Grant, and American Water Works Association, attended by Federal, state, and local agencies; private industry; and municipalities. Allows for exchange of information and eliminates redundancy in research efforts. Completed and distributed more than 65 Tech Notes to more than 2000 subscribers. Tech Notes are distributed directly to the public allowing for awareness and education. The Zebra Mussel Coordination Committee met. The ZMRP manager chaired session for the Sixth International Zebra Mussel Conference in Dearborn, MI. Coordination and technology transfer is essential for leveraging Federal funds.

2023

18 MAR 1996

APPROPRIATION TITLE: General Investigations, FY 1997

6. Characterization and Restoration of Wetlands Research

SUMMARIZED FINANCIAL DATA:

Estimated Program Cost	$20,000,000
Allocation Requested for FY 1997	2,000,000
Balance to Complete after FY 1997	16,888,000
Allocation for FY 1996	1,112,000
Increase of FY 1997 over FY 1996	888,000

JUSTIFICATION:

Flood control is one of the key missions for the Corps of Engineers. As such, one of the chief contributors to the increased devastation due to recent large-scale flooding has been the loss of wetlands. Studies show U.S. wetlands acres have been reduced by 50 percent over the past 200 years and current reductions exceed 100,000 acres/year. The continued degradation of wetlands has caused grave concern for those whose jobs depend on the marketable resources found associated with wetlands.

The Corps receives approximately 50,000 wetlands permit requests each year, with less than one percent denied. The R&D from this program will steadily increase the state of the knowledge for wetlands science to insure wetlands losses are compensated in a manner which will protect critical wetlands functions without unduly impacting other competing interests.

In addition to its role as the wetlands regulator for nonagricultural lands, the Corps mission to maintain the navigability of our waterways requires the active management of major land holdings along these waterways. As a result, the Corps must conduct mission-specific R&D to proactively achieve environmental compliance and resource management

18 MAR 1996

6. Characterization and Restoration of Wetlands Research (cont)

mandates (including wetlands management) and still accomplish the more traditional Corps missions. This guidance results in more rapid, economical solutions to regulatory issues, allowing the Corps to reduce regulatory burdens and provide the greatest return on taxpayer dollars. Guidance includes methods to: 1) create and restore wetlands on Corps managed and controlled lands, 2) delineate wetlands and evaluate their functions, 3) minimize wetlands impacts from Corps projects/activities.

MAJOR FEATURES OF THE FY 1997 PROGRAM: The purpose of the Characterization and Restoration of Wetlands Research Program is to develop new and verify/refine existing technologies related to wetlands critical processes and functions and to provide rapid, broadly applicable tools for the Corps and the Nation in wetlands restoration and characterization.

1. Wetlands Restoration, Protection, and Creation - Innovative techniques, structures, and equipment will be developed, evaluated, and field tested. These will be used to produce engineering approaches and design criteria for the subsequent application in wetlands restoration projects and related purposes such as mitigation banking.

2. Wetlands Delineation & Functional Evaluation - An approach to wetlands functional assessment will be developed. This approach will replace less regionally sensitive classification systems that group wetlands of the same type, regardless of the region of the U.S. In addition, more rapid, accurate, and cost-effective techniques will be developed to regionalize wetlands identification. The information provided through these two efforts will be critical to the fair and equitable treatment of wetland owners.

3. Critical Processes of Wetlands - Interdisciplinary ecosystem analysis of wetlands and their surrounding landscapes. This basic wetlands science will support the field guidance provided under the above mentioned thrust areas.

2025

18 MAR 1996

APPROPRIATION TITLE: General Investigations, FY 1997

6. Characterization and Restoration of Wetlands Research (cont)

ACCOMPLISHMENTS FOR FY 1996:

1. Developed regionally sensitive hydric soil indicators to provide greater geographic resolution in wetlands characterization. This will result in reduced Corps manpower requirements and shorten landowner's permit evaluation time.

2. Developed functional assessment models to provide greater sensitivity in determining functional replacement requirements for various wetland types. Results will provide more rapid/accurate wetlands evaluations which will translate into well defined/less costly mitigation requirements for landowners with projects proposing impacts to wetlands.

3. Developed new and innovative design and engineering techniques for restoring wetlands in selected wetlands systems. These innovations will increase wetlands restoration success and decrease dollars lost from poorly planned wetlands projects.

2026

1 8 MAR 1996

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

SUMMARY OF REMAINING ITEMS

CONSTRUCTION, GENERAL

	FY 1996 Allocation	FY 1997 Request	Increase (Decrease)
	$	$	$
2. Navigation Projects			
a. Channels and Harbors			
(II) Projects Not Specifically Authorized By Congress (Sec. 107, P.L. 86-645)	3,210,000	5,000,000	1,790,000
(III) Mitigation of Shore Damages Attributable to Navigation Projects (Sec. 111, P.L. 90-483)	550,000	500,000	(50,000)
c. Inland Waterways Users Board (Sec. 302, P.L. 99-662)			
(I) Board Expenses	37,000	40,000	3,000
(II) Corps Expenses	170,000	185,000	15,000
4. Beach Erosion Control Projects			
b. Projects Not Specifically Authorized by Congress (Sec. 103, P.L. 87-874)	1,376,000	3,000,000	1,624,000
5. Flood Control Projects			
a. Local Protection			
(II) Projects Not Specifically Authorized by Congress (Sec. 205, P.L. 80-858)	15,590,000	24,500,000	8,910,000
(III) Emergency Streambank and Shoreline Protection (Sec. 14, P.L. 79-526)	6,420,000	7,500,000	1,080,000
(IV) Snagging and Clearing (Sec. 208, P.L. 83-780)	275,000	500,000	225,000

18 MAR 1996

2027

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

SUMMARY OF REMAINING ITEMS

CONSTRUCTION, GENERAL

	FY 1996 Allocation	FY 1997 Request	Increase (Decrease)
	$	$	$
6. Dam Safety Assurance Program	1,834,000	2,000,000	166,000
10. Project Modifications for Improvement of the Environment (Sec. 1135, P.L. 99-662)	9,950,000	15,000,000	5,050,000
12. Aquatic Plant Control Program	3,668,000	2,500,000	(1,168,000)
13. Beneficial uses of Dredged Material (Sec. 204, P.L. 102-580)	2,262,000	4,000,000	1,738,000
14. Employees Compensation (Payments to Department of Labor)	18,984,000	18,892,000	(92,000)
Total	64,326,000	83,617,000	19,291,000

2028

18 MAR 1996

APPROPRIATION TITLE: Construction, General, FY 1997

2. Navigation Projects

a. Channels and Harbors

(II) Projects not Specifically Authorized by Congress (Section 107, PL 86-645, as amended)

Allocation FY 1996 $3,210,000 Tentative Allocation FY 1997 $5,000,000

GENERAL: Section 107 of the River and Harbor Act of 1960 (PL 86-645), as amended, authorizes up to $35,000,000 annually for construction of navigation projects where such construction is not already specifically authorized by Congress. Projects are designed to provide the same complete navigation project that would be provided under regular authorization procedures. Each project selected must be economically justified and complete within itself. Federal cost participation cannot exceed $4,000,000 per project.

BUDGET REQUEST: The $5,000,000 requested for Fiscal Year 1997 is to continue the Section 107 program of development and construction of navigation projects at locations throughout the Nation.

(III) Mitigation of Shore Damages Attributable to Navigation Projects (Section 111, PL 90-483, as amended)

Allocation FY 1996 $550,000 Tentative Allocation FY 1997 $500,000

GENERAL: Section 111 of the River and Harbor Act of 1968 (PL 90-483), as amended, authorizes the construction of projects for the prevention or mitigation of shore damages attributable to Federal navigation works. The cost of installation, operation, and maintenance shall be borne entirely by the United States. Projects first cost shall not exceed $2,000,000 without specific authorization by Congress.

BUDGET REQUEST: The $500,000 requested in Fiscal Year 1997 is to continue the Section 111 program of mitigation of shore damages attributable to Federal navigation works.

18 MAR 1996

2029

APPROPRIATION TITLE: Construction, General, FY 1997

2. Navigation Projects

c. Inland Waterways Users Board

Allocation FY 1996 $207,000 Tentative Allocation FY 1997 $225,000

The $225,000 requested for Fiscal Year 1997 is to support, operations and expenses of the Inland Waterways Users Board, established by Section 302 of the Water Resources Development Act of 1986, (PL 99-662) and pursuant to the Board's charter, approved by the Secretary of the Army on March 3, 1987. The Board is an advisory committee subject to the requirements of the Federal Advisory Committee Act (PL 92-463).

(1) Funds in the amount of $40,000 are requested to meet the estimated expenses of the eleven member Board for its travel, meeting, and other needs to meet the requirements of the Charter.

(2) Funds in the amount of $185,000 are requested for Corps of Engineers expenses related to its responsibilities as an advisory committee sponsor. The Director of Civil Works has been designated Executive Director to the Board, and he has designated staff members to provide continuing Board support. Corps expenses will include personnel costs for administrative Board meeting support, including staff travel, clerical, printing, and related materials.

4. Beach Erosion Control Projects

b. Projects Not Specifically Authorized by Congress (Section 103, PL 87-874, as amended)

Allocation FY 1996 $1,376,000 Tentative Allocation FY 1997 $3,000,000

GENERAL: Section 103 of the River and Harbor Act of 1962 (PL 87-874), as amended, authorizes up to $30,000,000 annually for construction of shore and beach restoration and protection projects where not already specifically authorized by Congress. Projects under this special authority are formulated to provide the same complete project and same degree of protection provided under regular authorization procedures. Each project selected must be economically justified and complete within itself. Federal cost participation is limited to $2,000,000 per project.

BUDGET REQUEST: The $3,000,000 requested for Fiscal Year 1997 is to continue the Section 103 program of development and construction of flood, hurricane, and storm damage protection measures along the Nation's shorelines.

18 MAR 1996

2030

APPROPRIATION TITLE: Construction, General, FY 1997

5. Flood Control Projects

a. Local Protection

(II) Projects Not Specifically Authorized by Congress (Section 205, PL 80-858, as amended)

Allocation FY 1996 $15,590,000 Tentative Allocation FY 1997 $24,500,000

GENERAL: Section 205 of the Flood Control Act of 1948 (PL 80-858), as amended, authorizes up to $40,000,000 annually for construction of flood control projects where such construction is not already specifically authorized by Congress. Projects are designed to provide the same complete project and same degree of protection provided under regular authorization procedures. Each project selected must be economically justified and complete within itself. Federal cost participation is limited to $5,000,000 per project.

BUDGET REQUEST: Funds in the amount of $24,500,000 are requested for Fiscal Year 1996 to continue the Section 205 program of development and construction of flood damage prevention projects at locations throughout the Nation.

(III) Emergency Streambank and Shoreline Protection (Section 14, PL 79-526, as amended)

Allocation FY 1996 $6,420,000 Tentative Allocation FY 1997 $7,500,000

GENERAL: Section 14 of the Flood Control Act of 1946 (PL 79-526), as amended, authorizes up to $12,500,000 annually for the construction of emergency bank protection works to prevent flood damages to highways, bridge approaches, public works, churches, hospitals, schools, and other non-profit public services. Each project selected must be economically justified and complete within itself. Federal participation under this authority is limited to a cost of not more than $500,000 at any single locality.

BUDGET REQUEST: The $7,500,000 requested in Fiscal Year 1997 is to continue the Section 14 program of emergency bank protection construction to prevent flood damages to highways, bridge approaches, and essential public facilities at locations throughout the nation.

(IV) Snagging and Clearing (Section 208, PL 83-780, as amended)

Allocation FY 1996 $275,000 Tentative Allocation FY 1997 $500,000

GENERAL: Section 208 of the Flood Control Act of 1954 (PL 83-780), as amended, authorizes up to $7,500,000 annually for removing accumulated snags and other debris, and clearing and straightening of the channels in navigable streams and tributaries thereof, when in the opinion of the Chief of Engineers such work is advisable in the interest of flood control. Federal cost participation under this authority is limited to a cost of not more than $500,000 for any single tributary. Each project selected must be economically justified and complete-within-itself.

BUDGET REQUEST: The $500,000 requested in Fiscal Year 1996 is to continue the Section 208 program of channel clearing in the interest of flood control at locations throughout the Nation.

18 MAR 1996

2031

APPROPRIATION TITLE: Construction, General, FY 1997

6. Dam Safety Assurance Program

Allocation for FY 1996 $1,834,000 Tentative Allocation FY 1997 $2,000,000

GENERAL: The Dam Safety Assurance Program provides for modification of completed Corps of Engineers dam projects that have a potential for failure from the occurrence of extremely large floods and\or seismic events. There are over 700 dam projects under Corps jurisdiction. While no Corps dams are in imminent danger of failure, some may have a higher risk than originally anticipated based on experience from past floods and seismic events. Dam modification work is proceeding under existing authorities on projects where cost-effective risk reduction measures have been identified and approved.

BUDGET REQUEST: This Corps-wide budget item includes $2,000,000 for Dam Safety Assurance new starts which may be approved by the Assistant Secretary of the Army (Civil Works) during FY 1996 and FY 1997 as a result of studies now underway. The total FY 1996 budget request for the Dam Safety Assurance Program is $8,650,000. Funds in the amount of $6,650,000 are included in the FY 1997 budget for applicable Divisions to continue ten specific projects that have been approved by the Assistant Secretary of the Army (Civil Works). These specifically approved projects are:

Project	FY 1997 Request
Beach City Lake, OH	$ 220,000
Dewey Lake, KY	2,000,000
Galisteo Dam, NM	150,000
Homme Lake, ND	450,000
Lake Ashtabula and Baldhill Dam, ND	1,450,000
Pine River Dam, Cross Lake, MN	680,000
Table Rock, MO & AR	460,000
Tenkiller Ferry Lake, OK	690,000
Two Rivers Dam, NM	250,000
Waco Lake, TX	300,000
Total	$6,650,000

2032

APPROPRIATION TITLE: Construction, General, FY 1997

10. Project Modifications for Improvement of the Environment (Section 1135, PL 99-662, as amended)

Allocation FY 1996 $9,950,000 Tentative Allocation FY 1997 $15,000,000

GENERAL: Section 1135 of the Water Resources Development Act of 1986 (PL 99-662), as amended, authorizes up to $25,000,000 annually to review the operation of Corps water resources projects to determine the need for structural or operational modifications for the purpose of improving the quality of the environment in the public interest, and to carry out a program of such modifications that are feasible and consistent with authorized project purposes. The non-Federal share of the cost of any modifications will be 25 percent. Modifications with estimated costs over $5,000,000 require specific Congressional authorization.

BUDGET REQUEST: The $15,000,000 requested for Fiscal Year 1997 is to continue Section 1135 program of structural or operational modifications to projects in the interest of improving the quality of the environment. Funds included in this request are sufficient to provide 75 percent of the costs; the balance of the costs will be provided by the non-Federal sponsor.

2033

1 8 MAR 1996

APPROPRIATION TITLE: Construction, General, FY 1997

12. Aquatic Plant Control Program

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	$ 2,500,000
Allocation for FY 1995	11,459,000
Allocation for FY 1996	3,668,000
Allocation Requested for FY 1997	2,500,000

AUTHORIZATION: Section 104 of the River and Harbor Act of 1958, (P.L. 85-500), as amended by Section 104 of the River and Harbor Act of 1962, (P.L. 87-874), Section 302 of the River and Harbor Act of 1965 (P.L. 89-298), and Sections 103, 105, and 941 of the Water Resources Development Act of 1986 (P.L. 99-662).

JUSTIFICATION: Nearly 1.6 million acres nationwide are now infested with problem aquatic plants. The potential spread of the plants is over several million acres. The Corps manages over 5.5 million surface acres of water at its reservoir projects alone, with significant additional acreage as part of navigation projects. Lack of continued funding will be the loss of needed technologies for effective aquatic plant control at Corps projects. Eurasian watermilfoil, waterhyacinth, alligatorweed, and other exotic species continue to expand from local infestations, many of which are interfering with navigation, flood control, hydropower production and water-borne recreational uses. New colonies of objectionable aquatic plants continue to be found, such as hydrilla in the Potomac River and the Chesapeake Bay and Eurasian watermilfoil in the Northwest. Aquatic plant control research, which is an integral component of the APC Program, is the nation's only federally authorized research program for technology needed to manage non-indigenous aquatic plant species. The objective of the research is to develop cost effective, environmentally compatible aquatic plant control technology, including biological, chemical, mechanical and integrated control methods. The control technology resulting from APC research forms the national base in this area, and is applied not only to control aquatic plant infestations in public waters nationwide, but is also essential to cost effective, environmentally compatible, aquatic plant control for the operation and maintenance of Corps projects. An annual expenditure ceiling of $12,000,000 is established for the entire Aquatic Plant Control Program including its operations, planning and research components.

ACCOMPLISHMENTS: Funds appropriated in prior years have permitted control of major infestations of problem aquatic plants in critical areas. The direct application of technologies developed by research under the Aquatic Plant Control Program have resulted in the reduction of waterhycinth in the Gulf Coast States and California of over 3 million acres. In Louisiana alone, waterhyacinth has been reduced from 1.5 million acres to about 200,000 acres. In addition, technology developed by the APC research program has resulted in a nationwide reduction of alligatorweed. Annual savings produced by application of these APC research technologies in the cases above are estimated from $5-15,000,000 over the costs of conventional methods.

APC research conducted under this program is producing information on the physiological requirements of problem aquatic plants and is producing new biological, chemical and mechanical technology for their control. The research program has identified, evaluated and introduced biological agents that have helped in the control of waterhyacinth in Louisiana, Florida, and Texas, and has made available a successful control agent for alligatorweed in the deep south. All such species must pass a rigid quarantine program and be certified for release prior to the field tests.

The U.S. Army Corps of Engineers Waterways Experiment Station has transferred information concerning new techniques and tools to users at the Federal, state, and local levels, quickly, efficiently, and successfully in accordance with their stated purposes.

FISCAL YEAR 1997: $2,500,000 will be used for continued research efforts for aquatic plant control technologies, to support the operation and maintenance of Corps projects. Efforts will focus on control methods for submersed aquatic plants (i.e. Eurasian watermilfoil, and hydrilla), with emphasis on biological control agents. Research efforts are fully coordinated with other Federal, state, and local agencies to prevent duplication of effort and to ensure that research under this program is consistent with, and complementary to, the research efforts of others. The cost of research dealing with problems/outputs of regional or nationwide importance is 100% Federal.

2035

1 8 MAR 1996

APPROPRIATION TITLE: Construction, General, FY 1997

13. Beneficial uses of Dredged Material (Sec. 204, P.L. 102-580)

Allocation FY 1996 $2,262,000 Tentative Allocation FY 1997 $4,000,000

GENERAL: Section 204 of the Water Resources Development Act of 1992 (Public Law 102-580) authorizes the Secretary of the Army to carry out projects for the protection, restoration, and creation of aquatic and ecologically related habitats, including wetlands, in connection with dredging for construction, operation, or maintenance by the Secretary of an authorized navigation project. Annual appropriations not to exceed $15,000,000 are authorized. Non-Federal interests would be required to share in a minimum of 25 percent of the cost of each project including the provision of all required lands, easements, rights-of-way and relocations with the value of these contributions included in the 25 percent non-Federal share of the project and to pay 100 percent of the operation, maintenance, and replacement and rehabilitation cost of the wetland or other aquatic habitat area. The costs of the habitat protection, restoration or creation project would be limited to costs which are in excess of those costs necessary to carry out the dredging for the authorized navigation project.

BUDGET REQUEST: The $4,000,000 requested in Fiscal Year 1997 is to continue a cost shared program for the protection, restoration and creation of aquatic and ecologically related habitats, including wetlands. This program would support the objectives of the Coastal America Partnership, the North American Waterfowl Management Plan, and the cooperative agreement between the Department of the Army and the National Marine Fisheries Service.

2036

APPROPRIATION TITLE: Construction, General

14. Employees Compensation (Payments to the Department of Labor)

FY 1995	FY 1996	FY 1997
$18,071,000	$18,984,000	$18,892,000

Public Law 94-273, approved April 21, 1976, 5 USC 8147b, provides that each agency shall include in its annual budget estimates a request for an appropriation equal to costs previously paid from the Employees Compensation Fund on account of injury or death of employees or persons under the agency's jurisdiction.

The amount of $18,892,000 represents the total costs of benefits and other payments made from the Employees Compensation Fund during the period July 1, 1994, through June 30, 1995, due to injury or death of persons under the jurisdiction of the Corps of Engineers civil functions.

2037

18 MAR 1996

Department of the Army, Corps of Engineers -- Civil

OPERATION AND MANTENANCE, GENERAL
FISCAL YEARS 1996 & 1997 SUMMARY OF REMAINING ITEMS

Activity	Nat./ Lab	FY 1995 Appropriation ($)	FY 1996 Budget ($)	FY 1996 House ($)	FY 1996 Senate ($)	FY 1997 Recommendation ($)
A B C	D G	F	H	I	J E	L M
1. Navigation Projects						
a. Channels and Harbors						
- Coastal Inlet Research Program	R	4,000,000	4,000,000	2,000,000	2,000,000	2,000,000
- Dredging Operations Technical Support (DOTS) Program	L	3,250,000	3,350,000	1,675,000	1,675,000	a/
- Dredging Operations and Environmental Research (DOER)	R	—	3,000,000	—	—	1,000,000
- Environmental Dredging (Section 312)	N	1,000,000	—	—	—	—
- Monitoring of Coastal Navigation Projects	L	2,100,000	2,100,000	1,900,000	1,900,000	1,900,000
- Scanning Hydrographic Operational Airborne Lidar Survey (SHOALS)	L	2,164,000	1,750,000	1,750,000	1,750,000	—
b. Locks And Dams						
- Repair, Evaluation, Maint & Rehab. Research (REMR II)	R	6,000,000	6,000,000	—	2,000,000	2,000,000
- River Confluence Ice Research Program	R	1,150,000	1,150,000	—	—	500,000
2. Flood Control						
a. Reservoirs						
- Environmental Review Guide For Operations (ERGO)	N	1,500,000	2,000,000	—	—	—
- Hazardous Waste Site Restoration Initiative	N	—	3,000,000	—	—	—
- National Dam Safety Program	N	20,000	20,000	20,000	20,000	20,000
- Cultural Resources (NAGPRA/Curation)	N	3,235,000	4,000,000	2,000,000	2,000,000	2,000,000
- Natural Resources Technical Support (NRTS)	L	1,600,000	1,800,000	—	—	a/
- Natural Resources Inventory (NRI)	N	—	500,000	—	—	—
- Peer Review Program	N	400,000	400,000	—	—	200,000
- Pollution Prevention Program	N	—	4,000,000	—	—	—
- Real Time Water Control Program	R	850,000	1,000,000	—	—	c/
- Reinvested User Fees For Recreation Improvements	N	—	5,000,000	—	—	—
- Water Operations Technical Support (WOTS) Program	L	1,550,000	1,600,000	—	—	a/
- Wetlands Action Plan Implementation	N	—	500,000	—	—	—
4. Protection of Navigation (The three items, a, b, & c, are on one justification sheet)						
- Dredging Data and Lock Performance Monitoring System	IWR	725,000	480,000	480,000	480,000	480,000
a. Protecting, Clearing and Straightening Channels (Sec 3)	N	50,000	50,000	50,000	50,000	50,000
b. Removal of Sunken Vessels	N	1,000,000	1,000,000	500,000	500,000	500,000
c. Waterborne Commerce Statistics	N	4,200,000	4,200,000	4,200,000	3,200,000	4,000,000
5. National Emergency Preparedness Program (NEPP)	N	7,000,000	7,000,000		5,000,000	5,500,000
6. Project Operations Support Program						
Operations Technical Support	N		a/			2,650,000
- Performance Measurement for Operations and Maintenance	IWR	—	3,500,000	—	—	—
- Policy and Procedure Options for Project O&M	IWR	500,000	—	—	—	—
- Civil Works Energy Data System	L	60,000	60,000	—	—	—
- Earthquake Hazards Program For Buildings and Lifelines	L	600,000	1,250,000	800,000	800,000	700,000
- Mississippi River Basin Mainstem Model Development	N	1,000,000	1,000,000	—	—	500,000
- Reliability Models Program For Major Rehabilitation	L	595,000	675,000	—	500,000	500,000
Total Remaining Items		**44,549,000**	**64,385,000**	**15,375,000**	**21,875,000**	**24,500,000**

APPROPRIATION TITLE: Operation and Maintenance, General -- FY 1997

1. NAVIGATION

a. Channels and Harbors

Coastal Inlets Research Program

SUMMARIZED FINANCIAL DATA:

Estimated Six-Year (FY 1994-1999) Program Cost	$20,000,000
Allocation Requested for FY 1996	4,000,000
Allocation Requested for FY 1997	**2,000,000**
Balance to Complete after FY 1997	12,076,000
Decrease of FY 1997 from FY 1996 Request	2,000,000

JUSTIFICATION: Based on past experience, the Corps of Engineers will expend an estimated $8 to $10 billion over the next 25 years at the 100 plus tidal inlets with existing federal navigation projects. Political, engineering, and demographic factors may increase these costs. The public perception, right or wrong, that federal activities at inlets cause adverse response at adjacent beaches may require additional, expensive mitigation. Public sensitivity to current maintenance practices, where dredged material is placed in offshore disposal areas, may result in requirements for more expensive nearshore placements of maintenance materials to benefit adjacent beaches. Inlets are the primary conduit for the transport of environmental constituents from bays to the open ocean, and the Corps may be constrained from performing present activities unless accurate predictions of inlet response, and thus environmental response, to such activities are available.

The Corps performs coastal research on a wide-ranging spectrum of topics. Coastal inlets have received a small part of the attention in past research. The Coastal Engineering Research Program, funded under the General Investigations R&D banner, has studied some isolated aspects of coastal inlets, particularly the development of scour at structures placed at inlets and the movement of sediment in and near inlets. However, these studies are insufficient in their scope and content to satisfy the design and maintenance needs of the Corps of Engineers relative to coastal inlets. Therefore, the Coastal Inlets Research Program was initiated in FY 1994 to address the needs of the Corps in this area.

The Coastal Inlets Research Program is a high-intensity program to increase Corps capabilities to cost effectively engineer and maintain the over 100 inlet projects which comprise the bulk of coastal operations and maintenance (O&M) expenditures. Because of their complex nature, the physics and behavior of inlets are poorly understood. So little is known about inlet behavior and response that there is a danger that the Corps is spending much more of its O&M budget than is necessary to maintain and enhance inlets. The Coastal Inlets Research Program will study functional aspects of inlets such as their short-and long-term behavior and their response to waves, tides, currents, and man-made changes, given their geologic makeup. As the physics and relationships of inlet behavior become better understood, sophisticated tools for management of inlets for navigation projects will become available from the research program.

18 March 1996

MAJOR FEATURES OF THE FY 1997 PROGRAM:

a. Continue study of how inlets change over time; define these behaviors in terms of fluid dynamics and sedimentation.

b. Complete intensive, short-duration field data collection effort at an existing inlet. Data are used to adjust our models and validate our other studies.

c. Complete large-scale laboratory study of sediment paths around structures.

d. Continue to study shoal removal. These are major sources of local beach nourishment material if no detrimental effects are found.

e. Develop empirical relationship to predict scour depth due to ebb currents being deflected by an inlet structure.

f. Complete wave and current model development for the Inlet Modeling System.

ACCOMPLISHMENTS OF THE FY 1996 PROGRAM:

a. Conducted laboratory experiments to develop shoal mining guidance.

b. Initiated laboratory experiments of erosion of inner boundaries of inlets. Erosion of inner banks is major source of material in channels that must be dredged.

c. Developed methods to include wave forcing in inlet circulation modeling. Wave forcing is required to accurately reproduce currents and sediment transport of inlets.

d. Initiated field measurement program to quantify seasonal changes in inlet process behavior. These data will be used to verify inlet processes and develop tools to better manage projects at inlets.

e. Used interim field observations to validate preliminary sediment budget methodology and channel shoaling prediction techniques. Accuracy of predictive techniques will be verified when final field measurements are available.

f. Initiated efforts to explain how, where, and when sand moves around inlet structures. Most federal inlet projects have structures and maintenance of these structures affects how much sediment moves into channels and must be dredged.

2040

APPROPRIATION TITLE: Operation and Maintenance, General -- FY 1997

1. NAVIGATION

a. Channels and Harbors

Dredging Operations and Environmental Research (DOER) Program

SUMMARIZED FINANCIAL DATA

Estimated Eight-Year (FY 1997-2004) Program Cost	$48,000,000
Allocation for FY 1996	0
Allocation Requested for FY 1997	1,000,000
Balance to Complete after FY 1997	47,000,000

JUSTIFICATION The last comprehensive research effort on contaminated sediments and dredged material management was completed in 1978 under P.L. 91-611. The Water Resources Development Acts of 1986, 1988, 1990 and 1992 and several recent Bills pending before Congress, including H.R.2173, S.1114, S.1183 and S.75, contained provisions aimed at contaminated sediments in navigation channels and dredged material management. Contaminant level detection limits are now in the parts per quadrillion range and traditional upland disposal areas have reached or are reaching capacity. The continued economic viability and national defense of the Nation will depend upon our ability to remove and manage dredged materials in an environmentally responsible manner.

One important aspect of the program is to identify candidate screening methods for dioxin that, if successfully simplified, will result in significantly reduced testing costs at virtually all harbors. Developing methods for recovering marginally contaminated sediments from upland disposal areas for beneficial use and developing techniques to better characterize the contaminant status of dredged material are key components of the program and will save valuable capacity in traditional upland areas. Research on siting and dike design of containment islands in coastal and ocean environments is intended to compliment contaminant loss investigations from upland disposal sites. This research will be conducted in full coordination and cooperation with other appropriate agencies and offices such as Environmental Protection Agency, National Marine Fisheries Service and U.S. Fish and Wildlife Service. Aggressive technology transfer and technology application will ensure that research products are integrated into decision making at Corps projects and made available to port authorities and other navigation project sponsors.

Research is proposed in six areas to address the navigation dredging and environmental protection mission. Research area products are designed to address issues impacting our ability to maintain a safe, reliable and economically efficient navigation system: These areas are:

2041

1. Contaminated Sediment Characterization, Management and Treatment
2. Dredge Instrumentation to Improve Efficiency
3. Nearshore and Offshore Placement of Dredged Material and Containment Island Siting and Design
4. Environmental Windows for Dredging Operations
5. Cost-effective Application of Innovative Equipment Technologies
6. Environmental Risk Assessment and Management for Contaminated Sediments

These areas of the DOER program were designed to include those efforts identified as having the potential to produce the greatest returns to the Corps of Engineers dredging program. Benefits include environmental quality improvements achieved through proper application of environmental windows; cost-effective compliance with regulatory requirements for identifying and containing contaminated sediments; improved techniques for predicting the movement of dredged material placed in the nearshore or offshore zone, greater flexibility in dredging in sensitive ecological areas, and expanded options for beneficial uses of dredged material.

MAJOR FEATURES OF THE FY 1997 PROGRAM

a. Identify candidate screening methods for dioxin that, if successfully simplified, will result in significantly reduced testing costs.

b. Define the range of impacts for dioxin-contaminated sediments for selected organisms.

c. Identify areas where implementation of innovative dredging equipment will have a high payback in the Corps' dredging program.

d. Prepare a summary of ecological factors that must be considered in evaluating the risks associated with dredged material disposal alternatives.

e. Identify important physical and environmental factors that enter into deciding whether or not to place dredged material in the nearshore coastal zone.

f. Investigate design parameters for off-shore containment islands.

g. Establish the technical and managerial requirements for implementing a silent inspector system for pipeline dredging and barge disposal

h. Survey Corps of Engineers districts to identify the fiscal and managerial impacts of seasonal environmental restrictions placed on dredging operations.

i. Investigate the feasibility of alternative dredged material disposal technologies such as remediation and deep-ocean disposal.

MAJOR ACCOMPLISHMENTS OF THE FY 1996 PROGRAM

No accomplishments: new program.

2042

APPROPRIATION TITLE: Operation and Maintenance, General -- FY 1997

1. NAVIGATION

a. Channels and Harbors

Monitoring of Coastal Navigation Projects

SUMMARIZED FINANCIAL DATA

Average Annual Continuing Program Cost	$2,000,000
Allocation Requested for FY 1996	2,100,000
Allocation Requested for FY 1997	1,900,000
Decrease of FY 1997 from FY 1996	200,000

JUSTIFICATION: A national program is needed to monitor, evaluate, and document the performance of projects that are designed to solve or mitigate major coastal navigation problems. Navigation projects often involve large financial investments. Overly conservative design may require liberal funding. Conversely, a deficient design often leads to excessive operation and maintenance costs. This program monitors project performance, evaluates the performance against preconstruction projections, and transfers the sometimes costly lessons learned into guidance for the field and management staff. Coastal topography is often changed in response to constructed features of navigation projects. Currents, waves, flushing characteristics, tidal stages, and other hydrodynamic phenomena are also changed by the construction of navigation projects. Information gained from monitoring coastal engineering parameters, including the magnitude and rate of these changes, is required to verify design expectations, ascertain benefits, and evaluate operational and maintenance efficiencies. The Corps now has 800 navigation projects to maintain. Information collected from monitored coastal navigation projects will be analyzed locally with regard to topographic and hydrographic responses and project performance in relation to the need of each project. Additionally, this information will be collected and analyzed on a national basis to satisfy the need to document successful designs and to disseminate upgraded field guidance.

SCOPE: A selective and intensive monitoring of Civil Works coastal navigation projects is executed to acquire information to improve project purpose attainment, design guidance, construction methods, and operation and maintenance (O&M) techniques. Projects that provide maximum quantity and quality of applicable data addressing coastal engineering problem areas are identified and those that best address high-priority problems are selected for monitoring and evaluation. Monitoring plans are developed jointly by Corps of Engineers Districts and the Coastal Engineering Research Center. They consist of either a comprehensive detailed survey to verify post-construction conditions on a one time basis or a continuous (or repetitive) collection of prototype data. Generally, monitoring

2043

efforts will not exceed five years in length. The intensive data base is analyzed and the prototype results compared to the pre-construction predictions to verify or upgrade existing design guidance, minimize O&M cost, and assure project-formulated benefits. The analyses include structural, topographic, and hydrodynamic responses and inter-comparisons of projects when applicable.

ACCOMPLISHMENTS: Technical reports summarizing monitoring results have been published for projects at Burns Harbor, IN; Agat Harbor, Guam; the Siuslaw River Jetties, OR; Colorado River, TX; Cleveland Harbor, OH; Manasquan Inlet, NJ; and Yaquina Bay, OR. Monitoring plans have been developed for projects at the mouth of the Columbia River, OR/WA; and Chincoteague Inlet, VA. Also, plans have been developed for detailed inspections of the Nawiliwili Breakwater at Kauai, HI, and the Humboldt Bay, CA, jetties; and breakwaters at Calumet Harbor, IN/IL, and Chicago Harbor, IL. Significant results meriting emphasis include evaluation of spur jetties as an effective alternative to costly maintenance dredging; evaluation of side-scan sonar imagery and an acoustic scanner as cost efficient underwater inspection techniques; development of photogrammetric monitoring techniques for relatively cheap, fast, and accurate structure surveys; verification of a recently developed shallow-water wave model; use of ground penetrating radar for mapping the underground clay surface of nearshore areas; evaluation of improved instrumentation for measuring sediment transport; and data showing the importance of considering the effects of currents along with waves on structure stability. Monitoring results have also assisted in developing more efficient maintenance programs at Cattaraugus Creek, East Pass, Puget Sound, Umpqua River, Manasquan Inlet, Bodega Bay, Cleveland Harbor, Barbers Point, Ocean City Inlet, Fisherman's Wharf, and the Hawaiian Breakwaters. Valuable lessons learned through monitoring these projects have been transferred to field offices for use on current and future projects.

PROPOSED FY 1997 ACTIVITIES:

Reports based on monitoring at Redondo Beach, CA and St Paul Island, AK, are in preparation. Monitoring efforts will continue for projects at St. Joseph Harbor, MI; Barnegat Inlet, NJ; and St. Paul Island, AK; Cleveland Harbor, OH; Calumet Harbor, IN/IL; Chicago Harbor, IL; Humbolt Bay, CA; and a dredged material disposal site at the Mouth of the Columbia River, OR/WA.

ITEM	FY 1996	FY 1997
Recommended Monitoring Plan Reports	$ 30,000	$ 30,000
Monitoring and Data Reports	1,570,000	1,570,000
Program Management and Data Storage	300,000	300,000
TOTAL	$1,900,000	$1,900,000

2044

COORDINATION: Coordination between the Corps of Engineers and other Federal, State, and local agencies is essential for proper accomplishment of this program. In addition to satisfying Corps of Engineers requirements, the data will be made available through publications and will be of value to local, State, and other Federal agencies tasked with the development and implementation of regional coastal and offshore management policies.

2045

1. NAVIGATION

b. Locks and Dams

Repair, Evaluation, Maintenance, and Rehabilitation Research Program (REMR II)

SUMMARIZED FINANCIAL DATA

Estimated Total (FY 1991-1998) Program Cost	$31,801,000
Allocation for FY 1996	1,442,000
Allocation Requested for FY 1997	**2,000,000**
Balance to Complete after 1997	3,000,000
Increase of FY 1997 over FY 1996	58,000

JUSTIFICATION: Eighty-five percent of the Corps of Engineers, hydraulic structures are over 20 years old, 60 percent are over 30 years old, and 20 percent are over 50 years old. The increasing age of these structures is the primary reason that the Corps' O&M cost has grown to 48 percent of its budget. The objective of the REMR Research Program is to identify and develop innovative technologies that will reduce the cost of maintaining and extending the service life of the Corps' aging Civil Works infrastructure.

The initial REMR Research Program clearly demonstrated the benefits of advanced technology in meeting the needs of the Corps. That program is credited with $200 million in savings and cost-avoidances from the $35 million research investment (a 5.7 to 1 return on investment within 5 years of completion). The REMR-II Research Program is in the sixth year of its scheduled eight-year life and has already produced a number of innovative concepts and techniques including a new design for navigation lock lift-gates that eliminates the need for replacement caused by poor fatigue resistance inherent with current designs, cost-effective reservoir shoreline erosion control techniques, improved maintenance procedures for hydraulic structures containing lead pigmented paints to reduce adverse environmental effects, a patented concrete armor unit-for rubble-mound structures that will significantly reduce the cost of-coastal structures, and numerical modeling systems for more economical evaluation and repair of high-velocity channels. Technology developed to date will result in cost savings of $25 million, and an estimated $150 million will be realized upon successful completion of the $31 .8 million program.

ACTIVITIES OF THE FY 1997 PROGRAM: Funding for FY96 and planned funding for FY97 were well below the original schedule. Consequently, to maximize saving within the severe funding

constraints, REMR will be extended one year into FY 1998. A summary of scheduled activities under each Program Area for FY 1997 follows:

1. Concrete and Steel Structures. New concepts will be developed for precast concrete elements which provide cost savings in the repair and rehabilitation of concrete structures. Methods for in situ repair of deep cracks in mass concrete will be developed. Optimum roller-compacted concrete mixtures for repairs will be determined. A non-linear pulse-echo system will be developed for nondestructive evaluation of concrete at greater depths than possible with current systems. These three thrusts will result in significant cost savings of at least $4 million.

2. Geotechnical. All field tests on the effects of vegetation on levee performance will be completed and used to develop new maintenance procedures. Methods of controlling seepage through levees, and innovative concepts for slope instability protection will be investigated. Both of these studies will result in increased levee safety and decreased maintenance costs. Draft guidance will be prepared on cost-effective shoreline erosion control techniques for reservoirs. A case history search will be conducted on the durability of stone under various environmental conditions. This case history will be used to verify our preliminary classification system for construction stone that will allow the selection of more durable stone for Corps projects and thus reduce maintenance costs.

3. Hydraulics. Mini- and microcomputer versions of the hydraulic numerical modeling system called TABS, for evaluating the efficiency of existing estuarine and riverine training structures, will be released to engineers in the field. This system will be used for the design of more economical and effective training structures. Field demonstrations of solutions for ice accumulation problems on Corps hydraulic structures will be conducted during winter operations. Those solutions will permit more efficient winter operations.

4. Coastal. Guidance will be issued for the design of a stable toe for coastal structures in a combined wave and flow environment. The stable toe design will prevent failure of the toe of these structures which leads to progressive failure of the structure and results in the need for major rehabilitation. The design of optimum concrete armor units for use in repair and rehabilitation of coastal structures will be developed.

5. Electrical and Mechanical. Specifications will be developed for Volatile Organic Compound (VOC) Compliant Coating Systems for lock and dams. These specifications will

23-577 96-65

2047

permit the Corps to comply with environmental regulations and still provide effective protective coatings for its structure.

6. Operations Management. Training courses will be conducted on recently developed management systems for three types of Corps structures. These management systems provide effective management tools for tracking the service condition of individual structures with time. They can be used to optimize maintenance and repair schedules. Procedures will be developed for obtaining condition indexes for service bridges at hydraulic structures and for earth and rockfill dams. Management systems will be developed for coastal structures and lock and dam operating machinery.

COORDINATION. Extensive program coordination exists. First, expertise relevant to REMR problems is obtained from the technical staffs of various field operating agencies, and a synthesis of existing knowledge is made available to field operating agencies. Second, the program is coordinated with other Federal agencies (U.S. Bureau of Reclamation, Tennessee Valley Authority, and Federal Energy Regulatory Commission) through the biennial Interagency Research Coordination Conferences, annually through REMR-II meetings, and more frequently through meetings between experts in the particular problem areas. Third, a REMR Information Exchange Bulletin is published on an irregular basis and distributed to over 3,500 individuals, technical organizations and societies, and local, state, regional, and Federal agencies.

ACCOMPLISHMENTS FOR FY 1996. This was the sixth year of funding for the REMR-II program. Funds were reduced from a scheduled $6M to $1.442M which necessitated rescheduling of planned efforts. This was necessary to allow continuation of those work units with major investments. A summary of the accomplishments follows:

1. Concrete and Steel Structures. Procedures were developed for the efficient repair of concrete hydraulic structures using geotextiles which allows the repair of leaking concrete dams and intake towers to be made without dewatering the reservoir. Guidance was also developed on the use of cost-effective roller compacted concrete technologies for rehabilitation of existing structures. Stability analysis procedures for concrete gravity structures were upgraded which ensures safe structures at lower cost. Guidance was developed for making more durable repairs to hydraulic steel structures which will lead to reduced maintenance costs.

2048

Repair, Evaluation, Maintenance, and Rehabilitation Research Program (REMR II) (cont)

2. Geotechnical. Preliminary guidance was developed on maintenance practices for vegetation on levees. Demonstration site monitoring was continued on cost-effective shoreline erosion control techniques for reservoirs. Guidelines were developed for the protection of levees against overtopping, surface erosion, and current and wave attack. A preliminary classification system for construction stone was developed to provide an accurate assessment of stone durability.

3. Hydraulics. A report on solutions for icing problems at Corps projects was published and distributed. A beta version of a software system for evaluation of navigation training structures using mini- and microcomputers were released and materials were developed for a training course that will be conducted in FY 97.

4. Coastal. A computer design program for concrete armor units was updated to allow the efficient design of concrete armor units. Large-scale structural/hydraulic repair evaluations of the new precast concrete armor unit called CORE-LOC was completed and will result in efficient and cost effective armor designs.

5. Electrical and Mechanical. Lab analysis of Volatile Organic Compound (VOC) compliant coating system were completed and a technical report prepared.

6. Operations Management. Condition indices were developed to quantitatively rate the present condition of dikes and revetments, operating systems, roller gates, and coastal structures. Management systems were developed for roller gates and dikes and revetments. Training and assistance was provided to Corps District personnel for implementing and upgrading, when necessary.

7. Four additional REMR Information Exchange Bulletins were published; an additional supplement to the REMR Notebook was issued which contained technical notes on materials, equipment, methods and techniques for maintenance and repair; and REMR technology was incorporated into appropriate Civil Works engineering manuals.

2049

APPROPRIATION TITLE: Operation and Maintenance, General -- FY 1997

1. NAVIGATION

a. Locks and Dams

River Confluence Ice Program

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY 1994-2000) Program Cost	$4,500,000
Allocation Requested for FY 1996	1,150,000
Allocation Requested for FY 1997	**500,000**
Balance to Complete after FY 1997	2,241,000
Decrease of FY 1997 from FY 1996 request	650,000

JUSTIFICATION: Ice accumulations and ice jams, often occurring at confluences where a smaller river joins a larger one, are directly or indirectly responsible for structural damages to Corps facilities such as locks and dams, river training structures, and bank-stabilizing riprap. The cost of these damages is estimated to be $50 million a year. Ice jams also can increase erosion of river beds and banks. Many Corps structures will undergo extensive maintenance and rehabilitation in the near future. Potential ice effects should be evaluated to reduce future maintenance costs. The River Confluence Ice (RCI) Program will provide guidance in addressing these effects.

Another concern to the Corps of Engineers is the adverse effects of large ice accumulations and ice jams on inland navigation. Ice slows down or totally suspends shipping of critical supplies (coal, oil, grain, etc.). Also it often causes extensive damages to fleeting and mooring areas and the loss of towboats and barges. For example, the River Industry Action Committee (RIAC) in St. Louis has estimated that ice jams at the confluence of the Mississippi and Missouri Rivers in December 1989 created costs of $1.5 to $3.0 million to the commercial navigation industry alone. This does not include transportation revenue or shoreline property losses.

Complete elimination of ice accumulation problems at river confluences is not possible, nor economically justifiable. The River Confluence Ice Program is intended to reduce risks and uncertainties as well as reduce the costs of river confluence ice problems. This will be accomplished by improving the operation and maintenance of Corps facilities, with associated reductions in losses of shoreline property owners and commercial shipping concerns.

MAJOR FEATURES OF THE FY 1997 PROGRAM: The purpose of the program is to address river confluence ice problems by developing practical methods for immediate use by Corps personnel to reduce the severity and frequency of ice events at the junctions of tributaries and their mainstems. The program features development of new or improved methods and techniques as well as synthesis, application, and extension of existing technology to reduce ice jam problems in the Corps navigation mission. The major aspects of the program are described below.

2050

1. Prediction of Ice Jams at River Confluences. Ice jams at river confluences occur suddenly and often unexpectedly, causing both severe damage to Corps projects and delays to navigation, and providing little time to take protective measures, to deploy emergency equipment, or to broadcast warnings. The objective of this work unit is to develop methods for assessing and predicting ice breakup problems at river confluences.
These predictions, based on given physical river conditions and weather, will provide short-term notice of ice-breakup events.

2. Structural Ice Mitigation Techniques in Tributaries and Mainstems. Tributaries often release large quantities of ice to the mainstem, resulting in ice accumulations at the mouths of tributaries, suspending mainstem river traffic, and ultimately impacting the operation of Corps projects such as locks and dams. The objective of the work unit is to develop structural methods to retain ice in tributaries until the mainstem is cleared of ice, and to determine the effectiveness of these methods for various flow conditions in the reaches upstream from the confluence.

3. Non-structural Ice Mitigation Techniques as Applied to Confluences. Under the same circumstances that prompt the previous work unit, non-structural measures may, under certain conditions, offer advantages over structural techniques, either by reducing ice quantities or by promoting the early weakening and/or clearing of ice from the receiving reaches. The objective of this work unit is to develop non-structural methods to reduce ice and/or delay ice release in tributaries until the mainstem is cleared of ice, and/or to accelerate the clearing of ice from reaches below confluences. The objective also includes determining the effectiveness of these methods for a variety of flow conditions in the reaches adjacent to the confluences, and optimizing combined (structural/non-structural) approaches.

4. Effects of Project Operations. Water releases from multipurpose reservoirs and navigation projects during the winter months may cause or increase existing ice accumulations at river confluences or elsewhere. The objective of this work unit is to provide Corps Water Control Centers and Corps project operators with guidance for evaluating the effects of flow releases on 1) ice jam formation and evolution, 2) sheet ice and ice jam breakup, and 3) flow routing during freezing temperatures.

5. Effects of Channel Modification. Many river confluence ice problems are caused by channel characteristics. It is necessary to be able to predict the effects on ice problems resulting from man-made and natural channel modification. The objective of this work unit is to identify the role of channel characteristics in causing particular ice problems at river confluences, and to predict the effects of specific channel modifications in reducing or eliminating ice jams.

ACCOMPLISHMENTS IN FY 1996: None. Funding was suspended in FY 1996.

2051

APPROPRIATION TITLE: Operation and Maintenance, General -- FY 1997

2. FLOOD CONTROL

a. Reservoirs

National Dam Safety Program

SUMMARIZED FINANCIAL DATA

Continuing Program Annual Cost	$20,000
Allocation for FY 1995	20,000
Allocation for FY 1996	20,000
Allocation requested for FY 1997	**20,000**

JUSTIFICATION: Dams in the United States must be constructed, operated, and maintained in accordance with sound engineering practices to prevent failure and avoid potential loss of life and destruction of property.

BACKGROUND: By Executive Order 12148 and Presidential Directive, the Federal Emergency Management Agency (FEMA) was designated as lead agency in efforts to enhance national dam safety. The Corps of Engineers and FEMA signed a Memorandum of Understanding (MOU) for the purpose of establishing responsibilities for management and administration assistance in the implementation of the National Dam Safety Program. The MOU was entered into pursuant to the Economy in Government Act, 31 U.S.C. 1535. A principal objective is to provide for allocation of Corps funding to FEMA on a programmatic rather than project-specific basis to enable development of a more systematic approach to effecting national dam safety. FEMA will provide support in development of federal guidelines for dam safety, promotion of public awareness programs, publications, training materials and workshops.

2052

APPROPRIATION TITLE: Operation and Maintenance, General -- FY 1997

2. FLOOD CONTROL.

a. Reservoirs.

Cultural Resources(NAGPRA/Curation)

SUMMARIZED FINANCIAL DATA

Estimated Total (FY 1994 - 1997) Program cost	$10,116,000
Allocation Requested for FY 1996	4,000,000
Allocation Requested for FY 1997	**2,000,000**
Decrease of FY 1997 from FY 1996	2,000,000

JUSTIFICATION: The Native American Graves Protection and Repatriation Act (NAGPRA) contains data gathering, reporting, consultation, and permitting provisions that have near-term and long-term implications for Civil Works programs and projects. The Department of the Interior (DOI) is now working to develop a set of Federal regulations that will implement NAGPRA. However, because of the immediate impacts and specific reporting requirements imposed by the Act, it is imperative that U.S. Army Corps of Engineers (USACE) Commands begin NAGPRA implementation, even in the absence of DOI regulations. A Mandatory Center of Expertise (MCX), located at the St. Louis District, has been established to provide overall management of the Corps NAGPRA programs and will serve as an information source and a centralized base for curation compliance and contracting. MCX efforts will affect on the ground activities in more than thirty states. In addition, the Corps is responsible for the curation of a large volume of cultural resource materials collected from its flood control projects. Curation of these materials is required by a number of public laws.

BACKGROUND: On 16 November 1990, NAGPRA was signed into law. NAGPRA is a complex piece of legislation that addresses the recovery, treatment, and repatriation of Native American and Native Hawaiian cultural items by Federal agencies and museums. As defined by the Act, cultural items are human remains, associated funerary objects, unassociated funerary objects, sacred objects, and objects of cultural patrimony. In FY 1994, USACE Commands began the process of inventorying human remains and associated funerary objects and completing summaries as mandated by the legislation. In addition, the Corps has been responsible for curation of cultural resource materials collected from its flood control projects. These collections are extensive and are located at a variety of curation facilities across the nation. The costs shown here represent only the cost to accomplish NAGPRA work and to fund MCX support to the districts. Long term curation costs are unknown at this point. However, the MCX in providing NAGPRA inventories will assist in establishing the extent of Corps holdings. Following the completion of NAGPRA, the MCX will be in a position to effectively manage the Corps curation efforts.

MAJOR FEATURES IN THE FY 1996 PROGRAM: USACE Commands will complete the process of inventorying Native American and Native Hawaiian human remains and associated funerary objects and complete summaries of unassociated funerary objects, sacred objects, and objects of cultural patrimony as mandated by the legislation. Information will be made available to interested individuals and groups through notices in the

2053

Federal Register and USACE Commands will continue to engage in formal consultation with tribes and organizations for the legislated purpose of repatriating cultural objects for which there are legitimate claims. A Mandatory Center of Expertise (MCX), established at the St. Louis District, is facilitating and assuring consistent nationwide program implementation and operation.

2054

APPROPRIATION TITLE: Operation and Maintenance, General -- FY 1997

2. FLOOD CONTROL

a. Reservoirs

Peer Review Program

SUMMARIZED FINANCIAL DATA

Estimated Average Annual Cost for Continuing Program	$200,000
Allocation Requested for FY 1996	400,000
Allocation Requested for FY 1997	**200,000**
Decrease of FY 1997 from FY 1996	200,000

AUTHORIZATION: This program is conducted under the general authority of PL 78-534, the Flood Control Act of 1944 (58 Stat. 887).

JUSTIFICATION: The peer review program provides a systematic procedure for broad-scope evaluation of programs by teams of peer professionals at water resources projects managed by the Corps of Engineers. The evaluation includes interpretation and implementation of policy guidance, operational planing process, budget development and execution, personnel staffing levels, and management of available resources. The goals are to assist field project managers to achieve a quality, cost effective program to serve our customers/partners better; achieve consistent implementation of relevant laws, policies and regulations; provide an information exchange of good ideas; identify program strengths, areas that need improvement and alternative solutions to management problems; and identify issues requiring resolution at higher organizational levels. This is not an audit nor an inspection program. The requested funds are for travel costs of the peer review team members.

STATUS OF IMPLEMENTATION: The program was implemented initially in FY 1994. Twenty percent of districts will be reviewed in FY 1996. The program will be conducted as an integral program management tool on a continuing basis.

FY 1997 PROGRAM: A 5-year schedule for evaluating OCR programs in each district has been established. The peer review program will be conducted at projects in 8 districts in FY 1997. A team of peer professionals will visit projects in each district, evaluate appropriate OCR programs, and prepare a report of findings to include recommendations and "good ideas" for information transfer. The program will be conducted at a constant level of effort to facilitate continuing and effective OCR program evaluation.

2055

APPROPRIATION TITLE: Operation and Maintenance, General -- FY 1997

4. PROTECTION OF NAVIGATION

Dredging Data and Lock Performance Monitoring System

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	$480,000
Allocation Requested for FY 1996	480,000
Allocation Requested for FY 1997	**480,000**

AUTHORIZATION: These efforts are necessary to provide data for efficient management of Congressionally authorized navigation projects, as well as to respond to specific public laws, including PL 96-269 (Minimum Dredge Fleet) and PL 100-656 (Small Business Set-aside).

JUSTIFICATION:

(1) **Dredging** Data: Collection of dredging data is a continual ongoing analytical process to support the National Dredging Program (NDP). On going tasks include continuing collection of all Corps hired labor dredging, dredging contract data including advertising schedules, contract award and completion data and multi-year continuing analysis of dredging costs. The Dredging Statistics Program is necessary to provide dredging data for the Corps headquarters, divisions, districts, local project sponsors, the dredging industry, and all agencies requiring dredging data or summary statistics. This amount includes software refinement and hardware upgrades to enable interactive user access, integration with other NDP and Corps databases, as well as continuing user support and training.

(2) **Lock Performance Monitoring System (LPMS)**: The LPMS provides operational and strategic management data and performance measures for the Corps navigation projects and program. This amount covers all LPMS services including remote batch, interactive timesharing, and networking services using the nationwide program on the CEAP System. This also includes funding for lock characteristics, decision support system and project database development.

FUNDING PROFILE

		FY 1996	FY 1997
(1)	Dredging Data & Statistics	$315,000	$315,000
(2)	Lock Performance Monitoring System	165,000	165,000
	TOTAL	$480,000	$480,000

2056

APPROPRIATION TITLE: Operation and Maintenance, General -- FY 1997

4. PROTECTION OF NAVIGATION -- Continuing Programs

SUMMARIZED FINANCIAL DATA:

	Protecting, Clearing and Straightening Channels	Removal of Sunken Vessels and Obstructions	Waterborne Commerce Statistics
Allocation Requested For FY 1996	$ 50,000	$1,000,000	$4,200,000
Allocation Requested For FY 1997	**50,000**	**500,000**	**4,000,000**
Change from FY 1996 to FY 1997	0	500,000	200,000

JUSTIFICATION: The budget estimate of $4,550,000 provides for carrying out the following work:

a. **Protection, Clearing, and Straightening of Channels.** Section 3 of the 1945 River and Harbor Act (as amended by Section 915(g) of the 1986 Water Resources Development Act) provides continuing authority for limited emergency clearing of navigation channels not specifically authorized by Congress. A limit per project is not specified; however, in any given year, a maximum of $1,000,000 may be used nationwide. Work pursuant to this authority is undertaken as emergency measures to clear or remove unreasonable obstructions to navigation in navigable portions of rivers, harbors and other waterways of the U.S., or tributaries thereof, in order to provide existing traffic with immediate and significant benefit. The amount requested is an estimate based on historical experience. If actual requirements are more than estimated, funds will be reprogrammed to meet demonstrated needs.

b. **Removal of Sunken Vessels.** Removal of sunken vessels, or other similar obstructions, is governed by Sections 15, 19, and 20 of the River and Harbor Act of 1899, as amended. Primary responsibility for removal belongs to the owner, operator, or lessee. If the obstruction is a hazard to navigation and removal is not undertaken promptly and diligently, the Corps may obtain a court judgement requiring removal, or remove the wreck and seek reimbursement for the full cost of removal and disposal. Determinations of hazards to navigation and Federal marking and removal actions are coordinated with the Coast Guard in accordance with a memorandum of understanding between the two agencies dated 16 October 1985. Removal procedures are outlined in 33 CFR 245. If removal requirements are more than estimated, funds will be reprogrammed to meet actual needs.

c. **Waterborne Commerce Statistics.** The Corps of Engineers serves as the Nation's sole source collection and distribution agent for domestic waterborne commerce statistics in conformance with the River

2057

and Harbor Act of 1922 and the Water Resources Development Act of 1986 (PL 99-662). Activities supporting this mission include: (1) collecting and reporting of statistical data; (2) processing, compiling, and annually publishing statistical data and information on waterborne commerce and vessels moving on the inland waterways, the Great Lakes, and through all U.S. ocean ports; (3) compiling and publishing of an annual report listing and describing all United States vessels engaged in commerce, along with the principle trades in which they are engaged and their zones of operation. These data provide the information necessary for accurate benefit-cost analyses to determine new navigation project feasibility and to establish funding priorities for the operation and maintenance of existing projects.

2058

APPROPRIATION TITLE: Operation and Maintenance, General -- FY 1997

5. **NATIONAL EMERGENCY PREPAREDNESS PROGRAM (NEPP)**

AUTHORIZATION: Executive Orders 10480 and 12656 which cite several acts including PL 93-288, the basis for the Federal Response Plan.

SUMMARIZED FINANCIAL DATA:

Allocation for FY 1996	$5,000,000
Allocation Requested for FY 1997	5,500,000
Increase of FY 1997 over FY 1996	500,000

JUSTIFICATION: This agency must be prepared to accomplish its continuity of operations and continuity of government responsibilities during national/regional crises. This entails support of civil government through coordinated execution of federal agency plans and the planning/conducting of exercises to test readiness to provide such support. The cited executive directives assign significant responsibilities for such preparation (planning, training, research and testing) to the Corps of Engineers. This includes responsibility for development of national level preparedness plans and guidance for response to all regional/national emergencies, whether caused by natural phenomena or acts of man, and the local preparedness necessary to support Corps continuity of operations. The Corps provides engineering and construction support to state and local governments in response to catastrophic natural and technological disasters. Rapid response to disasters of a regional/national magnitude requires that extensive pre-emergency planning and preparedness activities be conducted to assure the availability of a work force capable of shifting from routine missions to crisis operations and the organizational command and control structure(s) necessary to provide a coordinated and comprehensive response in the critical early stages of a catastrophic disaster.

The National Emergency Preparedness Program provides for the activities necessary to prepare for response to catastrophic natural and technological disasters, which require a large Federal presence in support of state and local governments overwhelmed by a disaster event, and for national level emergency water planning. The preparation requires the development of plans, training of employees, conducting of training exercises, including support to Federal Emergency Management Agency (FEMA) exercises, and coordination within DOD and with other Federal agencies and state and local governments. Unlike the Corps' Civil Works programs related to individual project planning, development and operations and maintenance, the NEPP requires the development of an integrated command planning and response capability. Corps divisions have a key role in the planning, coordination and operational control of multi-district response(s) and the integrated preparedness effort required to accomplish this response. Preparation also includes the Headquarters sponsored Corps-wide programs necessary to provide the capabilities and operational command and control required by Corps field commands in order to accomplish their NEPP responsibilities, both routinely and in specific emergency response situations. (This does not fund any Headquarters manpower.)

2059

ACCOMPLISHMENTS: National Emergency Preparedness Program funds provide support to two major national level civil planning areas: (a) support to the nation's ability to mobilize national assets to meet national/regional level emergencies and (b) support to continuity of government and continuity of operations during national emergencies. Activities include conducting studies and analyses which identify national support requirements; the development, coordination, review and updating of plans; development of operating guidance and procedures; training of personnel in emergency response skills and procedures; conducting exercises to test readiness; operating and maintaining emergency response command and control facilities and support systems; and providing program management for activities such as the Individual Mobilization Augmentee program, which the Corps has been able to utilize to support natural disaster response.

REASON FOR INCREASE: NEPP funds provide the Corps with the capability to accomplish the planning and preparedness activities necessary to respond to a broad spectrum of natural and technological civil disaster emergencies, which exert a national impact, and to conduct national level emergency water planning. Over the past several years program resources have been progressively reduced (first to $7 million and, in FY 1995, to $5 million) from its $8M historical funding level. These funds are utilized to pay salaries and provide facilities, and some limited travel and training, for the personnel in the field who develop and coordinate these national level activities and the continuity of operations planning necessary to develop the capability for the emergency relocation and reconstitution of Corps activities that may be required as a result of a natural or manmade (caused) disaster(s). When funded at $7 million, more than 95 percent of the appropriation was utilized for these purposes. Additionally, preparedness associated with regional response to oil spills and other events associated with discharges of hazardous material (s) has been added to the NEPP area of responsibility. Hardware and software enhancements are also necessary to provide the capability required to develop the scenario specific catastrophic disaster plans mentioned above. While carryover funds can be used to meet funding shortfalls during FY 1996, this resource will not be available for FY 1997. The additional $500,000 will allow USACE to continue the initiative to develop catastrophic disaster plans, albeit at a slower pace than was originally anticipated.

FISCAL YEAR 1997: The FY 1997 program will provide for continuing significant changes to National Emergency Preparedness Program implementation. Lessons learned from events such as the Midwest Floods of 1993, Hurricanes Hugo, Andrew and Iniki, the Loma Prieta and Northridge earthquakes and the evolving New Madrid earthquake scenario, clearly indicate that the Federal Response Plan, while a solid system, does not contain enough detail to provide for a response to catastrophic disasters that is sufficiently timely or comprehensive. In FY 1994 the Corps initiated a program that uses the deliberate planning process to develop scenario specific catastrophic disaster plans. This will result in more detailed planning and should provide for a more comprehensive response to national catastrophic disasters. More extensive coordination with Federal, state and local entities will be incorporated into plan development.

2060

MAJOR FEATURES IN THE FY 1997 PROGRAM: The FY 1997 program will continue the process of catastrophic disaster planning, initiated in FY 1994, to enable the Corps to rapidly respond to a broad spectrum of emergencies, with emphasis on catastrophic disasters that have national implications.

OTHER INFORMATION: The NEPP is complementary to the Flood Control and Coastal Emergencies appropriation. Although both programs are related to emergency situations, there is a distinct separation of responsibilities. The NEPP provides for the planning, training, and testing activities necessary to develop the capability to meet essential requirements associated with local continuity of operations and response(s) to scenario specific national/regional crises. The FCCE, on the other hand, provides preparedness and response related to emergency flood fighting, post-flood repair and restoration of flood and shore protection works damaged or destroyed by floods, hurricanes or wave action and Corps preparedness associated with Federal Response Plan requirements.

2061

APPROPRIATION TITLE: Operation and Maintenance, General -- FY 1997

1. Project Operations Support Program

Operations Technical Support (OTS) Program

SUMMARIZED FINANCIAL DATA:

Allocation for FY 1995	$6,400,000
Allocation for FY 1996	2,935,000
Allocation Requested for FY 1997 (Continuing Program)	**2,650,000**

AUTHORIZATION: Under basic project authority in conjunction with general authorities contained in various laws.

JUSTIFICATION: Maintaining the nation's navigation system and water resource projects require compliance with numerous statutes and Presidential Executive Orders. The management of dredged material from Corps Operations and Maintenance (O&M) navigation activities, the management of water quality at Corps projects, and the management of natural resources and recreation programs at Corps reservoir projects requires a comprehensive and interdisciplinary approach from a centralized program to maximize cost effectiveness and implement National policies and laws on a consistent basis. The Operations Technical Support (OTS) Program represents an efficient combination of the Dredging Operations Technical Support(DOTS) Program, the Water Operations Technical Support (WOTS) Program, and the Natural Resources Technical Support (NRTS) Program. Individual project problems will be resolved by OTS on a reimbursable basis from the respective project funds. However, there are techniques and procedures emerging from individual project efforts that can be of substantial benefit to all projects and can result in more effective low-cost management of all projects. The OTS Program supplies a centralized, comprehensive, and interdisciplinary team that can ensure that new technology is disseminated to all projects. The OTS Program will be able to more efficiently develop technology transfer tools, publish technical notes and guidance documents, and ensure interagency coordination and information dissemination.

MAJOR FEATURES: The Dredging Operations Technical Support(DOTS) Program, the Water Operations Technical Support (WOTS) Program, and the Natural Resources Technical Support (NRTS) Program have supplied direct environmental, engineering, and natural resource management technical support to all Corps elements in support of the maintenance and operation of projects; training of Corps staff on the latest environmental and engineering techniques associated with dredging and dredged material disposal, and water quality and related aquatic environmental issues; technology transfer of new and emerging techniques in assessment and management of dredged material for determining compliance with environmental protection statutes at Corps operations and maintenance projects; technology transfer of low-cost shoreline protection techniques; and non-structural alternative solutions for water quality problems at reservoir projects.

ACCOMPLISHMENTS: Since inception of the program, over 3,850 requests for technical assistance have been provided on individual Corps navigation and water resource projects. Ongoing dredged material technology application tasks include continuing efforts to assist in using the implementation manuals for the Clean

2062

Water Act and the Marine Protection, Research, and Sanctuaries Act. Guidance is being developed for applying techniques and methodologies to the management of contaminated dredged material including risk management, equipment selection, confined disposal facility management, and quality assurance/control guidance. Since the program initiated the sediment management seminars in 1991, over 1,500 personnel from Federal, state and local agencies have been trained at 7 seminars on the latest techniques in regulating, testing, and managing dredged materials. Annually, the DOTS program publishes and distributes nearly 25,000 copies of manuals, bulletins, technical reports and videos on dredging and dredged material disposal activities. A joint Corps/Environmental Protection Agency task force continues under this program to develop analytical procedures and a decision-making framework for dioxin-contaminated dredged material. That program is supporting the Corps' navigation dredging mission at Georgetown Harbor, SC; Brunswick Harbor, GA; New York Harbor, NY; Grays Harbor, WA; Mobile Harbor, AL; and Boston Harbor, MA.

Under the WOTS program in FY 1994, in addition to a Reservoir Shoreline Erosion Workshop and Corps Chemists Meeting, two new methods of information/technology transfer were implemented. A Corps-wide WOTS Electronic Bulletin Board System was placed on-line, as well as the publication of WOTS Technical Notes which will provide technical "how-to" information for field personnel in a short, concise, reference-notebook format. The WOTS Program coordinates with water quality elements of other Federal agencies such as the Tennessee Valley Authority, Bureau of Reclamation, Fish and Wildlife Service, and the Bonneville Power Administration including problems on the spread of Zebra Mussels, the impacts of hydropower facilities, and cold water releases in tailwater areas on fisheries. WOTS ensures that the technologies developed by the Corps and other Federal agencies are current and readily available to all Corps field offices. There are currently six technology demonstration activities being conducted under WOTS.

The NRTS program has developed and maintains a personal computer-based system that automates issuing and managing recreation user fee permits resulting in an annual national cost savings of $1 million. Annual updates, improvements and support of the Automated User Permit System(AUSP) is essential to keep up with the expanding recreation fee program, such as the FY94 addition of day use fee collections. NRTS has developed a procedure that evaluates the economic impact of the Corps recreation program and ensures cost efficient decisions are made on the Corps natural resources management program. On-going technical support is helping to improve collection and administration of recreation user fees at Corps projects. The Visitor Estimation and Reporting System (VERS) is essential for compliance with Congressional reporting requirements, and provides visitation data needed for making effective management decisions regarding visitor use at Corps facilities. NRTS provides the support and improvements needed to maintain and update the VERS. Substantial cost savings have been realized on recreation management use alternatives for projects on the Mississippi, Columbia, and Missouri Rivers. NRTS developed a method to measure customer satisfaction at Corps projects that provides a capability to optimize Corps O&M expenditures relative to users' requirements and customer care. OTS also provides funds to implement a national recreation reservation service which will provide for a procedure to increase occupancy rates and income at water resources projects managed by the Corps. With this service, data gathering, fee collecting and accounting responsibilities will be transferred to a campground reservation contractor, freeing up time for on-the-ground park personnel. Occupancy rates are projected to increase with the reservation system's advantages of referrals, marketing, assured sites and improved customer satisfaction. Once implemented, we estimate a minimum increase in user fee revenue of $7 million annually.

23-577 96-66

2063

APPROPRIATION TITLE: Operation and Maintenance, General -- FY 1997

6. PROJECT OPERATIONS SUPPORT PROGRAM

Earthquake Hazards Reduction Program for Buildings and Lifelines

SUMMARIZED FINANCIAL DATA:

Estimated Eight Year Program Cost (FY 1992-FY 1999)	$8,488,000
Allocations Prior to FY 1996	1,038,000
Allocation for FY 1996	800,000
Allocation Requested for FY 1997	700,000
Balance to Complete after FY 1997	5,950,000

AUTHORIZATION: This program is being conducted under the authority of Public Law 101-614, November 1990, National Earthquake Hazards Reduction Program Re-authorization Act and individual project authorizations for maintaining safety of personnel and emergency response capability.

JUSTIFICATION: The purpose of this program is to respond to the requirements of Public Law 101-614, National Earthquake Hazards Reduction Program (NEHRP) and Executive Order (EO) 12941, Seismic Safety of Existing Federal Buildings. The objective of PL 101-614 is to establish and initiate for buildings and lifelines a systematic approach to reducing loss of life, injuries, and economic costs resulting from earthquakes in the United States. Lifelines are defined as public works and utility systems (electrical power, transportation, water supply and sewers, telecommunications, and gas and liquid fuels). The EO directs all Federal departments and agencies to develop by December 1, 1998, an inventory of their owned and leased buildings and an estimate of the cost of mitigating unacceptable seismic risks in their buildings.

STATUS OF IMPLEMENTATION: Development of seismic screening and evaluation guidance for Corps buildings is being completed. Surveys are being completed of Corps owned buildings located in areas of high and moderate seismic risk to determine which buildings will require a seismic evaluation. Workshops are being developed to train district personnel to correctly and uniformly apply the evaluation procedures. Corps buildings located in high seismic risk areas will be evaluated first. Work to develop guidance for the seismic evaluation and risk mitigation of lifeline facilities will continue with the completion of lifeline reports for navigation locks and reservoir outlet works. A report on the status of the seismic evaluations performed to date on Corps dams and appurtenant structures will be prepared.

FY 1997 PROGRAM: The funds requested will be used by the districts to evaluate the seismic resistance of Corps buildings and lifelines in high and moderate seismic risk areas. Technical support, evaluation guidance, and monitoring of the seismic evaluations will be provided by the Corps' Earthquake Hazards Reduction Program (CEHRP) Technical Center for Civil Works Buildings and Lifelines. Seismic mitigation of buildings and lifelines, where necessary, will be funded through project funds.

APPROPRIATION TITLE: Operation and Maintenance, General -- FY 1997

6. PROJECT OPERATIONS SUPPORT PROGRAM

Mississippi River Basin Mainstem Model Development

SUMMARIZED FINANCIAL DATA

Estimated Four-Year (FY 1994-1997) Program Cost	$2,375,000
Allocations Prior to FY 1996	1,375,000
Allocation Requested for FY 1996	1,000,000
Allocation for FY 1996	500,000
Allocation Requested for FY 1997	**500,000**
Balance to complete after Fiscal Year 1997	0

JUSTIFICATION: The Mississippi River basin has a drainage area of approximately 1,245,000 square miles, equivalent to 41 percent of continental USA. Through the years various flood control projects have been built and operated throughout the basin by various Federal and local governments as well as private agencies. The Corps of Engineers has built and operates a large number of reservoirs, levees, floodways and flow diversion structures in the basin for flood control and navigation. These projects are operated and maintained by five Corps divisions in a generally coordinated manner.

In recent years, various hydrologic models have been developed to simulate the rainfall-runoff process over the watershed in real-time. These models have been mostly implemented by Corps offices to operate single or sub-basin reservoir projects.

During hydrologic extremes such as the drought of 1980's and the great flood of 1993, intensive coordination among the 5 divisions in the Mississippi River Basin is required to operate the mainstem Mississippi River project as a system. One of the critical elements for operating the Mississippi River Basin projects is the time series of inflow data from tributaries to the mainstem Mississippi River. Such inflow data have profound effects on flow conditions along mainstem of the Mississippi River, and therefore must be modeled accurately.

In order to simulate the flow conditions along the mainstem Mississippi River, a mainstem hydraulic model must be applied. The Mississippi Basin Model (MBM) partially served this purpose until its decommission recently due to advanced age and cost of maintenance. As a logical substitution and extension for the MBM, which was a physiscal model, a mainstem mathematical model is being developed.

STATUS OF IMPLEMENTATION: Major accomplishments in FY 1996 include:

1. Completion of development and testing of the one-dimensional model (1-D) for the mainstem Mississippi.

2. Testing the 1-D model for real-time system operation.

2065

3. Completion of two-dimensional flow model for specific reaches.

MAJOR FEATURES OF THE FY 1997 PROGRAM: Coordinate and continue the ongoing efforts in development of the Mississippi River numerical models in FY 1997.

1. Completion of Mississippi River Mainstem Model development for real-time operation.

2. Development and testing tributary hydrologic models.

2066

APPROPRIATION TITLE: Operation and Maintenance, General -- FY 1997

6. PROJECT OPERATIONS SUPPORT PROGRAM

Reliability Models Program for Major Rehabilitation

SUMMARIZED FINANCIAL DATA:

Estimated annual Cost for Continuing Program	$500,000
Allocation for FY 1995	595,000
Allocation for FY 1996	500,000
Allocation Requested for FY 1997	**500,000**

JUSTIFICATION: The purpose of this program is to respond to yearly needs of Districts and Divisions which are preparing Major Rehabilitation reports for the upcoming fiscal year. The objective of the program is to provide reliability models and tools to evaluate the remaining service life of existing project features or components which are being considered for Major Rehabilitation, or to provide procedures to consider the impact of various chemical, environmental or physical processes in a reliability analysis.

STATUS OF IMPLEMENTATION: Reliability models and other analytical tools have been provided in support of Major Rehabilitation reports on five navigation and four hydropower projects. In addition, 10 rehabilitation workshops have been conducted in the last 4 years to provide assistance to the Districts as they prepare their reports. These workshops offer guidance in conducting reliability and risk analyses, and provide the opportunity for interdisciplinary teams from the Districts to discuss their particular project with HQUSACE and other District personnel. A report is in the process of being prepared to show the progress of the preparation of reliability models in support of the FY 1995 rehabilitation reports and a similar report will be prepared for the FY 1996 work.

FY 1997 PROGRAM: The requested funds will be used to prepare reliability models and collect data for reliability analyses anticipated to be required by several Districts. Reliability models and/or data are anticipated to be needed for the following: (a) Collection of data for determining loading cycles on miter gates, (b) instrumentation of gates to determine performance modes and verify load cycles used in reliability analyses, (c) development of time-dependent hazard function analysis procedures, and (d) development of expert elicitation procedures to be used in reliability analyses. Two rehabilitation workshops will be conducted. The makeup of these units may change commensurate with the specific needs of the respective Districts and Divisions.

2067

APPROPRIATION TITLE: Regulatory Program, FY 1997

AUTHORIZATION: Rivers and Harbors Act of 1899, Sections 9, 10 and 13
Clean Water Act, Section 404
Marine Protection, Research and Sanctuaries Act, Section 103

SUMMARIZED FINANCIAL DATA:

Appropriation for Fiscal Year 1996	$101,000,000
Appropriation Recommended for Fiscal Year 1997	$112,000,000
Increase in FY 1997 over FY 1996	$ 11,000,000

JUSTIFICATION:

Background. The Corps of Engineers has been regulating certain activities in the nation's waters since 1890. Most authority for administering the program has been given to the District Commanders and Division Commanders. National public awareness of wetlands and increasing state and Federal regulatory emphasis on wetlands continue to grow. In August 1993, the White House proposed a new plan for improved management and protection of the nation's wetlands. Some aspects of the White House Plan designed to improve the efficiency and effectiveness of the program, have been implemented, but are requiring additional resources. The general permit program is the primary method of reducing the intensity of Federal regulation of minor activities and to eliminate duplication of effort wherever possible. As resources allow, the Corps works with states to develop mechanisms to allow greater responsibility for wetlands regulation by states. This is achieved primarily through state programmatic general permits but also includes joint Corps-state permit applications and processing procedures as well as worksharing agreements. In addition, the Corps supports the Administrations's efforts to advocate assumption of Section 404 authority (in non-navigable waters) by states wherever states are able to implement appropriate regulatory controls.

Types of Activities Regulated.

a. Construction and other work in navigable waters of the United States;

b. Construction of fixed structures and artificial islands on the outer continental shelf;

c. Discharges of dredged or fill material, including those associated with excavation and landclearing activities, into the waters of the United States (including wetlands);

18 MAR 1996

2068

d. The transportation of dredged material for the purpose of disposal in ocean waters.

Evaluation Criteria. The decision whether to issue a permit is based on an evaluation of the probable impact of the proposed activity on the public interest. That decision reflects the national concern for both protection and utilization of important resources. In addition, for Section 404 permits the Corps must determine compliance with the Section 404 (b)(1) Guidelines.

ACCOMPLISHMENTS: The Corps authorizes about 75,000 activities per year through formal permit review procedures and is regulating thousands of additional minor activities which do not require formal review. About 8,000 to 10,000 are authorized by individual permits and more than 65,000 are authorized under regional or nationwide general permits. Although the evaluation process for an individual permit is typically greater than that for a general permit, many regional and nationwide authorizations involve substantive evaluation and determination of necessary mitigation by the Corps. Without regional and nationwide general permits, all activities would have to be intensively evaluated as individual permits. In January 1992, the Corps expanded its nationwide permit program to further reduce the regulatory burden on the public. In FY 1997 the nationwide permit program will be expanded further. Since late FY 1989 the Corps has been actively moving to ensure greater protection of the nation's wetlands while continuing to provide fair and equitable decisions in a reasonable period of time. Since FY 1992, the Corps has reduced its evaluation time for all permit actions by 20 per cent despite a 60 percent increase in requests for permit approvals. The Corps and the other Federal resource agencies are using the Corps 1987 wetlands delineation manual for identifying and delineating wetlands. The Corps is currently making more than 50,000 jurisdiction determinations a year, twice the number five years ago and five times the number ten years ago. Since August 1993 the Corps has been regulating discharges associated with excavation activities which ensures more comprehensive protection for the nation's wetlands. Regulation of excavation activities has substantially increased workload in many districts.

FISCAL YEAR 1997: The total request of $112 million is an $11 million increase over the FY 1996 appropriation of $101 million. This budget increase is necessary to continue implementation of responsibilities associated with the President's August 1993 Wetlands Plan. About $2.5 million of this increase will allow a labor intensive initiative to greatly increase state involvement in wetlands regulation. The primary aspect of this effort is the development of state programmatic permits whereby a state can handle permitting responsibilities for certain activities in certain areas, thus greatly reducing Corp workload. Optimum implementation of this initiative in FY 1997 could reduce total regulatory program workload and costs by up to 10 percent beginning in FY 1998. A total of $3 million in inflationary funds will allow the program to preserve current manpower strengths through FY 1997 so that the state initiative can be

18 MAR 1996

2069

pursued without having to divert personnel from permit evaluation or other program areas which would reduce service to the public or result in adverse environmental impacts.

About $5 million is required to fund the administrative appeals process for Corps permit decisions and jurisdiction determinations. The appeals program allows the public to challenge permit decisions and jurisdiction determinations without the need to enter the court system and it is a major component of the President's Wetlands Plan. The appeals process uses about 50 workyears and requires other costs such as increased travel and documentation. Appeals personnel are to be located in both district and division offices when it is fully operational by early FY 1997. Without specific funding for the appeals program, it can only be maintained by drawing on personnel and funds from other areas of the regulatory program. Significant reductions in these areas will result in increases in permit backlogs and permit evaluation times and an increase in violations with resultant aquatic impacts.

In addition, special efforts focusing on wetlands will continue. About $500,000 is required to cover start-up costs for national implementation of the Wetland Delineator Certification Program. This program, which was prescribed in the Water Resources Development Act of 1990, certifies individuals as wetland delineators, thus improving the quality of jurisdictional determinations by private consultants. Other wetland efforts include local or regional wetlands studies, especially those intended to help expedite development of state wetlands programs, wetlands training of Corps personnel, and technical assistance to Corps districts from the Corps Waterways Experiment Station. Generally, from $500,000 to $1 million is provided to this lab for this assistance.

The $112 million will be applied as follows:

Permit Evaluation	$80,000,000
Enforcement	$24,000,000
Appeals Process	$5,000,000
Studies & Wetlands Technical Support	$2,000,000
Other Navigation Regulations	$200,000
Environmental Impact Statements	$800,000
TOTAL	$112,000,000

18 MAR 1996

2070

APPROPRIATION TITLE: Flood Control and Coastal Emergencies (FCCE), FY 1997

Disaster Preparedness and Emergency Response

SUMMARIZED FINANCIAL DATA:

Appropriation Requested for FY 1997	$15,000,000
Appropriation, FY 1996	$10,000,000

JUSTIFICATION: The Army Corps of Engineers maintains a preparedness program to meet the needs of the Nation. The FY 1997 request of $15 million for Flood Control and Coastal Emergencies provides for the basic requirements of this program. The Corps responsibility for emergency/disaster response requires that fully functional engineering, construction and emergency operations response capabilities be maintained. This response can be under Corps authorities, such as P.L. 84-99, Flood Control and Coastal Emergencies, or in support of other agencies, particularly the Federal Emergency Management Agency (FEMA) under PL 93-288, The Stafford Act, and Executive Order No. 12148. Response activities under the Corps P.L. 84-99 authority include the following: all preparedness activities; emergency operations (flood response and post flood response); emergency repair and restoration of flood control works which are threatened, damaged or destroyed by flood; emergency protection of existing Federal hurricane and shore protection works; the repair or restoration of Federal hurricane or shore protective structures damaged or destroyed by wind, wave, or water action of other than ordinary nature; preventive work performed prior to flooding when conditions pose a flood threat to life or property; providing emergency supplies of clean water to any locality confronted with a source of contaminated water causing or likely to cause a substantial threat to public health and welfare; and provision of water supplies to drought-distressed areas by well drilling on a reimbursable basis or transportation of water at Federal cost. The request provides sufficient funding for normal disaster preparedness activities; emergency operations activities; lab support; and rehabilitation of projects damaged by disaster events. For each FCCE specific event, Headquarters may augment its staff to manage the event concerning resource allocations (dollars and people), logistics of moving people and materials, funding contractors and materials; and coordination with other agencies involved in the event. These augmentation activities include overtime for Headquarters staff, travel to the disaster area, materials and supplies, increased staff from the field to include Individual Mobilization Augmentees (IMA), and Geographic Information System (GIS) services to support disaster field operations.

2071

18 MAR 1996

APPROPRIATION TITLE: Flood Control and Coastal Emergencies (FCCE), FY 1997 (Continued)

ACCOMPLISHMENTS:

The U.S. Army Corps of Engineers continues to provide a leadership role to the Nation in response to natural disasters throughout the United States. This was demonstrated by the Corps emergency response, recovery and rehabilitation actions during and after several major hurricane and flooding events in 1995 and 1996. Major flooding in 1995 and 1996, particularly in the Northeast and Northwest, placed extraordinary demands on the program. In early 1996, funds were transferred from other civil appropriation accounts, under the Secretary of the Army's emergency authority, to make urgent repairs to Federal and non-Federal levees that were severely damaged by flooding.

Planning and preparedness activities for natural disaster response assure an engineering organization capable of responding to natural and man-made disasters, to include major catastrophic events. Such activities have included: the review and update of response plans to ensure viability; training personnel to ensure their capability to respond under adverse conditions; procurement and pre-positioning of critical supplies and equipment (i.e., sandbags, pumps, etc.) which would likely not be available during initial stages of a response; periodic exercises to test and evaluate plans, personnel and training; inspection of non-Federal flood control projects to ensure their viability to provide flood protection; and laboratory support for field operations. Effective management of the response program has resulted in workable, coordinated efforts undertaken in a timely manner.

In support of FEMA's disaster response and recovery activities, Corps mission assignments have included: emergency debris removal; preliminary damage assessments; detailed damage survey reports; temporary housing and life support; infrastructure restoration; emergency snow removal contracting; engineering services and construction management; and other support which relies on Corps engineering, contracting, and construction expertise. Activities in Support of Others encompass preparedness planning for response, recovery and mitigation operations authorized in P.L. 93-288. They reflect expanded mission requirements for planning and coordination in support of Federal responses to natural disasters, including earthquakes, and other disasters under the umbrella of the Federal Response Plan.

APPROPRIATION TITLE: Flood Control and Coastal Emergencies (FCCE), FY 1997 (Continued)

ACCOMPLISHMENTS (Continued):

The Federal Response Plan is being restructured by FEMA to expand the Corps of Engineers role in Infrastructure Recovery. Because of the vast experience in the infrastructure area, the Corps has been given the lead in this area by FEMA in coordination with DoD. The restructuring will require additional coordination at the Federal inter-agency (28 departments and agencies), State and local levels, to include more joint training and exercise sessions.

FISCAL YEAR 1997: The $15,000,000 requested for FY 1997 is $5,000,000 less than the FY 1996 budget request and $5,000,000 more than the FY 1996 appropriation. It will support effective management of the program and reflects an increase in modernization (equipment, software, etc.) of facilities and an aggressive levee inspection program. In addition, the request will provide funds for adequate response planning activities in support of others, e.g., the Federal Response Plan. Funds will be used to perform the following activities:

	FY 1996	FY 1997
Preparedness Program	8,700,000	8,700,000
Statutory Authorities:		
Activities in Support of Others	800,000	5,300,000
Facilities	500,000	750,000
Inspections	0	250,000
Total	$10,000,000	$15,000,000

2073

JUSTIFICATION OF ESTIMATES FOR CIVIL FUNCTIONS ACTIVITIES
Department of the Army, Fiscal Year 1997
Corps of Engineers
($000)

APPROPRIATION TITLE: General Expenses

	FY 1996 Appropriation	FY 1996 Carryover	FY 1996 Total*	FY 1997 Budget Request	Restructuring Funds**	FY 1997 Total	Change FY 1996-FY 1997
1. Executive Direction and Management							
a. Office, Chief of Engineers							
Baselevel Operating Expenses	$ 50,820	$ 485	$ 51,305	$ 52,300	0	$ 52,300	$ 995
Program Accounts	6,900		6,900	6,400	0	6,400	- 500
Total	57,720	485	58,205	58,700	0	58,700	495
b. Major Subordinate Commands	74,510	1,210	75,720	73,200	5,000	78,200	2,480
2. Other Activities							
a. Coastal Engineering Research Board	305	0	305	310	0	310	5
b. Humphreys Engineer Center Support Activity	13,770	760	14,530	15,520	0	15,520	990
c. Water Resources Support Center	4,590	0	4,590	4,650	0	4,650	60
d. Engineering Strategic Studies Center	605	0	605	620	0	620	15
TOTAL:	$151,500	$ 2,455	$153,955	$153,000	$5,000	$158,000	$4,045

*The Headquarters, its support activities, and the Major Subordinate Commands will continue their organizational restructuring, downsizing, and consolidation initiatives during FY 1996 and FY 1997. The FY 1996 funds distribution shows application of a portion of the restructuring funds and available carryover to offset the cost of downsizing without adversely affecting additional personnel during the transition. These funds are identified here to demonstrate actual funding levels projected for FY 1996 and FY 1997. The FY 1997 budget request is actually an increase of only 1% above the FY 1996 appropriated level, and about 1% less than the total FY 1996 funding level.

**The restructuring funds shown will be used to implement the Division Office Restructuring Plan, when approved, which will reduce the number of Major Subordinate Commands from the current eleven to the proposed eight. The restructuring funds represent the remainder of the $7 million approved for transfer from within the Corps FY 1993 Civil appropriations into the General Expenses account to fund the proposed reorganization. Two million dollars of the funds have been used to fund other Congressionally approved downsizing initiatives.

18 MAR 1996

APPROPRIATION TITLE: General Expenses

1. Executive Direction and Management

	FY 1996 Allocation	FY 1997 Request
a. Office, Chief of Engineers (OCE)		
(1) Baselevel Operating Expenses:	$51,305,000	$52,300,000
(2) Civil Program Accounts:	6,900,000	6,400,000
	$58,205,000	$58,700,000

The Office, Chief of Engineers is responsible for carrying out a comprehensive Civil Works Program. This mission is decentralized across the Corps of Engineers in 36 districts, 11 major subordinate commands (MSCs), and several field operating activities. The Office, Chief of Engineers assists field offices by providing policy formulation and oversight, national programs management, preparation of the annual budget and legislative submission, national and international interface, management of high interest or controversial projects or issues, resource analysis and distribution, oversight of execution, and performance measurement.

The amount requested for the Office, Chief of Engineers for FY 1997 consists of two components: the baselevel operating expenses of $52,300,000; and the Civil Program Accounts amounting to $6,400,000. The baselevel expenses amount reflects a modest increase of $495,000 over FY 1996, primarily for personnel cost increases. The Program Accounts are a result of the transition, initiated in FY 1993, to eliminate Centralized Accounts by FY 1996. The Centralized Accounts were disestablished and those activities appropriate for General Expenses funding were presented in the FY 1996 budget justification data. These items totalled $6,900,000 in FY 1996, and $6,400,000 is being requested for FY 1997. The activities funded in the Program Accounts are in four primary groups: Civil Works Automated Systems Maintenance, Civil Policy Guidance Update, Professional Development/Training, and Unique Mission Requirements, such as Readiness Functions and Alternative Dispute Resolution. The significant difference between the Program Accounts budget amounts is Computer Aided Design and Drafting Center (CADD) funded at $650,000 in FY 1996, which was determined to be more appropriate for budgeting in the General Investigations account for FY 1997.

The Corps downsizing efforts implemented from 1989 through 1997 reflect a reduction in executive direction and management staff of 26% overall compared to its field operating workforce reductions of 9%. These reductions have been accomplished primarily as a result of two initiatives in 1995 aimed at focusing on appropriate roles and missions and eliminating duplication of effort: the Headquarters Organizations and Functions Task Force, and the Division Office Organizational Task Force. These two actions resulted in significant role changes in the division offices and the headquarters. Policy review was centralized at the headquarters, reducing the levels of review. Any technical review previously provided by the divisions or headquarters was discontinued. With the consolidation of policy review at the headquarters, and the Federal Workforce Restructuring Act savings, the headquarters has reduced 24% since FY 1989, while the division staffing will be down by 32% by FY 1997. The headquarters is also on target with meeting supervisory ratios and high grade reduction goals in the Corps Streamlining Plan.

Program execution was also a focal point in FY 1995, which resulted in a marked improvement over previous years in all major programs. Consistent with the Administration's goals, emphasis has also been placed on developing results-oriented performance measures which will be used to evaluate execution in FY 1997 in terms of intended program outcomes and customer satisfaction in lieu of using primarily financial data to measure performance.

2075

18 MAR 1996

APPROPRIATION TITLE: General Expenses

1. Executive Direction and Management (Continued)

a. Office, Chief of Engineers (OCE)

FY 1996 Allocation	FY 1997 Request
$58,205,000	$58,700,000

The breakout of increased or decreased costs for the Headquarters by category of expenses is shown below.

Increase	
$ 745,000	- Personnel compensation and benefits.
-2,000	- Travel and transportation.
-245,000	- ADP, training and other contractual services.
-3,000	- Printing and reproduction, supplies and materials
$ 495,000	

(1) Increased Costs: Personnel costs are minimally increased for pay adjustments, contributions for retirement funds, and continuation of special pay rates for high cost areas. All other cost categories reflect a slight decrease from the actual FY 1996 funding level, which given inflation is a decrease of about 3%. The overall rate of increase is less than 1%, primarily due to additional staffing reductions in compliance with the 1994 Federal Workforce Restructuring Act. The FY 1997 budget reflects a further reduction of 3% in the headquarters staffing level, from 515 in FY 1996 to 499 in FY 1997. The $58,700,000 requested for expenses of the Office, Chief of Engineers, includes $49,978,000 for personnel compensation and benefits for civilian and military personnel, and $8,722,000 for other costs. The other costs include:

$ 1,844,000	-	travel and transportation
908,000	-	reproduction and printing, supplies and equipment
5,970,000	-	ADP, training, and other contractual services
$ 8,722,000		

2076

18 MAR 1996

APPROPRIATION TITLE: General Expenses

1. Executive Direction and Management (Continued)

b. Major Subordinate Commands

FY 1996 Allocation	FY 1997 Request
$75,720,000	$73,200,000

Major subordinate commands (MSC) provide the managerial and technical direction required for supervision of subordinate district offices and coordination of regional activities necessary to execute the Civil Works Program. The Executive Direction and Management activities are currently decentralized to 11 MSC throughout the United States. In FY 1995, in support of the Administration's National Performance Review and Reinventing Government initiatives, the Chief of Engineers initiated the Headquarters Organizations and Functions Task Force and the Division Office Organizational Task Force. The purpose of these two task forces was to clearly define and delineate the roles and missions of each organizational level, and develop a standard organizational structure for the major subordinate commands. Significant role changes included the elimination of technical and policy review from division offices and transferring any remaining operating functions to the districts. This resulted in a standard division office organizational structure and staffing level of 104 full-time equivalent positions for both civil and military missions. The plan was approved by the Secretary of the Army in 1995 for full implementation by the end of FY 1996.

Meanwhile, the FY 1996 Energy and Water Development Appropriations Act (Public Law 104-46) directed the Secretary of the Army to submit a plan that would reduce the number of division offices from 11 to no fewer than six and no more than eight, with each division supervising at least four districts. The Assistant Secretary of the Army (Civil Works) submitted a proposed plan to the appropriations subcommittee chairmen in early February, anticipating Secretary of the Army approval by mid to late March. Implementation of the plan is required to begin on 15 August 1996 and to be completed by 1 October 1997. A detailed cost analysis has not been developed pending approval of the plan. Once an approved plan is available, an assessment of costs for personnel realignments, office closures, furniture and equipment transfers, etc., will be formulated. However, since the schedule for completion would require implementation to be accomplished in FY 1997, these costs will be managed from within available funds from labor and rent savings, and from the approximate $5 million remaining from the $7 million transferred in FY 1993 for funding the proposed reorganization. Division Office FTE savings from these two restructuring initiatives are expected to reduce staffing by approximately 150 FTE by FY 1998. The FY 1997 budget, prior to the closure plan, would support 677 FTE, down 62 FTE from the FY 1996 level. Total savings from reducing the number of divisions will depend how many divisions remain and at what staffing level to support the redistributed workload.

In addition to these activities, the Corps of Engineers Financial Management System (CEFMS) is being deployed in five of the current division offices in FY 1997, resulting in additional training and equipment upgrade costs, and some increased travel. The FY 1997 budget reflects only standard inflation of payroll costs, and costs associated with CEFMS implementation. Changes from the prior year's budget follow.

2077

18 MAR 1996

APPROPRIATION TITLE: General Expenses

1. Executive Direction and Management (Continued)

b. Major Subordinate Commands

$ -3,141,000	-	Personnel compensation and benefits
-260,000	-	Rent, utilities, and communications
-171,000	-	Printing and reproduction, supplies and materials
110,000	-	Travel and transportation
942,000	-	ADP, training, and other contractual services and equipment purchases
$ -2,520,000		

The $73,200,000 requested includes $50,454,000 for personnel compensation and benefits for civilian and military personnel, and $22,746,000 for other costs. Other costs include:

$ 4,840,000	-	rent, communications, and utilities
3,276,000	-	travel and transportation
1,450,000	-	printing and reproduction, supplies and equipment
13,180,000	-	ADP, training, and other contractual services
$ 22,746,000		

Gross estimates of the distribution of the $5 million restructuring funds are approximately $2 million for adverse personnel costs, such as VERA/VSIP, Permanent Change of Station, or severance pay; about $2 million in costs to relocate or dispose of furniture, equipment, supplies, and files; about $500,000 for overlap of rental costs (procuring additional space for divisions ramping up for additional district workload while closing down other office(s)); $500,000 estimated for transportation and storage of household goods for displaced employees.

2078

18 MAR 1996

2. Other Activities

FY 1996 Allocation	FY 1997 Request
$20,030,000	$21,100,000

Other activities include: the Coastal Engineering Research Board (CERB) which provides broad policy guidance, reviews plans and funds requirements for conducting coastal engineering research and development, recommends research project priorities, and performs other duties assigned by the Chief of Engineers; the Humphreys Engineer Center Support Activity (HECSA) which provides administrative support to Corps tenants of the Humphreys Engineer Center and to Corps headquarters; the Engineering Strategic Studies Center (ESSC) which provides analytical support for the Civil Works mission, and the Water Resources Support Center (WRSC) which provides a variety of water management functions such as conducting and managing national studies, special studies in support of the Civil Works mission, data collection and distribution, and technical support to other Corps offices in matters dealing with water resource management. As part of the Administration's continuing initiatives to consolidate and centralize service functions, the operating human resources staff and the finance and accounting staff assigned to HECSA will be reduced in FY 1997 as a result of the Human Resources Regionalization efforts and the centralization of the USACE Finance Center (UFC) in Memphis, Tennessee. These reductions are reflected in the reduced staffing levels in achieving the Federal Workforce Restructuring Act reductions.

The amount requested for these activities for FY 1997 is $21,100,000, which is an increase of $1,070,000 from the FY 1996 allocation of $20,030,000. The primary increaes are due to an adjustment in the Pulaski Building rent, which HECSA pays for the headquarters. A recent space survey indicated that Civil Works was occupying more space than was being billed. In addition, the Pulaski Building lease was renegotiated at a higher rate, after the planned relocation to the Southeast Federal Center was nullified. These two factors are responsible for the Civil Works share of the rent increasing by approximately $800,000 in FY 1997. Other increases shown below represent normal inflation costs at the remaining activities, with the exception of the ADP category's increase to support fielding of the Corps of Engineers Financial Management System (CEFMS).

$ -104,000	-	Personnel compensation and benefits.
835,000	-	Rent, utilities, and communications.
-8,000	-	travel and transportation of goods.
19,000	-	reproduction and printing, supplies and equipment.
328,000	-	ADP, training, and other contractual services.
$1,070,000		

Breakdown of the total $21,100,000 request for the remaining activities includes $9,268,000 for personnel compensation and benefits for civilian and military personnel and $ 11,832,000 for other costs. The other costs include:

$ 6,427,000	-	rent, communications, and utilities (includes HQ payments also)
180,000	-	travel and transportation of goods
650,000	-	reproduction and printing, supplies and equipment
4,575,000	-	ADP, training, and other contractual services
$11,832,000		

18 MAR 1996

2079

APPROPRIATION TITLE: REVOLVING FUND - PLANT REPLACEMENT AND IMPROVEMENT PROGRAM (PRIP)

1. Explanation of Revolving Fund. The Revolving Fund, which was established by Congress in 1953 (Public Law 153, 83rd congress - 67 Stat. 199), replaced the Plant Allotment Account authorized by the Secretary of War, on 13 December 1934, which had in turn replaced the Plant Program - Appropriation Basis which was in use prior to 1934. The two systems, prior to the establishment of the Revolving Fund, did not prove to be successful, because the accounting procedures necessitated by the systems were cumbersome and resulted in a distorted picture of costs when plant was transferred from one appropriation to another.

Essentially, PL 153 provided that the Revolving Fund assume the total capital value of $127.9 million in 1953, consisting of the unexpended cash balance ($25.3 million) and the net value ($102.6 million) of the assets and liabilities of the plant accounts; and to perform all future services, as a separate entity, within its own resources. The Plant Replacement and Improvement Program of the Revolving Fund, or PRIP, has proven to be an effective means of providing equipment and materials needed on more than one project. Some advantages of the system are: (1) Simplifies funding and accounting procedures; (2) Provides a means for plant rental which considers plant replacement costs; (3) Eliminates distorted project costs when plant is not used entirely on a single project throughout its economic life; and (4) Permits plant to be available on a timely basis to meet changing workload requirements.

The concept of the Revolving Fund is for it to operate within its own resources, rather than from annual appropriations. The Fund owns all the land, structures, dredges, other floating plant, aircraft, fixed and mobile land plant, tools, office, furniture, special equipment, and computers, that serve two or more Civil Works projects. In order for the Revolving Fund to acquire and replace the above items, it is necessary that the user project or appropriation be charged a fee for the actual time the equipment is used. This fee consists of operating and fixed costs. The operating costs are reimbursed to the Revolving Fund without any surcharge. The fixed or capitalized costs include depreciation, based on the straight-line method and a plant replacement increment factor to provide for future increased costs of replacement items due to inflation. Two additional sources of income to the Revolving Fund are the sale of surplus items and, when planned expenditures exceed the income producing capability of the Fund, direct appropriations. For FY 1995, total income was $96,198,000. The income from depreciation and plant increment was $62,782,000 and $31,078,000 respectively. The remaining

2080

18 MAR 1996

$2,338,000 was from the sale of surplus equipment. When the Revolving Fund was established, Congress authorized a capital limitation or ceiling (Corpus) of $140.0 million for the Fund. The capital value or corpus is the total assets, less liabilities and reserves. The $140.0 million ceiling was adequate until 1965, when increased workload and inflation required that the Corps of Engineers request annual increases in the corpus ceiling. These requests were generally granted. The limitations on the corpus ceiling value limited the income that could be generated from plant rentals which, in turn, adversely affected the overall management of the Fund. Therefore, the Corps recommended that an annual capital expenditure ceiling be substituted for the corpus ceiling. Congress granted the request in FY 1979. Starting with FY 1985, expenditures ceilings were replaced by estimates of expenditures. Starting in FY 1994, the Corps replaced the estimate of expenditures by an estimate of obligations. This was done in accordance with recommendations of the General Accounting Office concerning the Corps change to obligations accounting within the Revolving Fund. New obligations in FY 1997 are estimated at $90,000,000.

2. The Revolving Fund is operated in the Divisions, Districts, and separate Field Offices, the Waterways Experiment Station, and the Cold Regions Research and Engineering Laboratory. The fund incurs the expenses of acquisition, rehabilitation, operations, and maintenance of multiple use structures, such as warehouses, shops, garages, and laboratories; the expenses of acquisition, rehabilitation, operations, and maintenance of general-purpose plant, such as dredges, tugs, launches, trucks, cranes, bulldozers, and other construction equipment; and the general expenses of District offices.

3. FY 1996 and FY 1997 (Items costing $700,000 or more)

a. Land and Structures:

(1) Hazardous Waste Research Center - Waterways Experiment Station (New): An addition is required to expand existing 10,000 sq. ft. facility to 18,000 sq. ft. Present facility is undersized and was constructed prior to the development of modern instrumentation and sophisticated pilot treatment equipment. The additions and betterments include improved research lab areas, centralized waste handling facilities, and four high hazard pilot studies areas. Presently high hazard treatment evaluations cannot be done in existing labs or anywhere else within the Corps. This restriction severely limits our ability to support some of the Corps highest priority construction and operations projects, which may include dioxin contaminated soils/sediments. In the

2081

18 MAR 1996

absence of an expanded facility, research that will contribute to significant cost savings and cost avoidance will not be conducted because there are no other research facilities capable of performing the critical studies. An economic analysis was conducted on three scenarios, including status quo, leasing, and construction of a new facility, with the new facility providing a savings to investment ratio of 20.6 over the investment period and a net present value from 2.5 to 10 times smaller than the other two alternatives considered. Total estimated cost: $1,980,000. Through FY 1996: $100,000 to initiate design. FY 1997: $935,000 to complete design and initiate construction. FY 1998: $945,000 to complete construction.

(2) Analytical Laboratory Facility - Waterways Experiment Station (Continuing). Beginning in 1972, the Analytical Laboratory at WES provided water quality analysis in support of the Corps environmental quality, wastewater management, and dredged material research programs. Since then, demand for analytical chemistry and methods research has expanded significantly, especially the demands for high hazard research (i.e., dioxins and dibenzofurans) for construction and operations projects. The existing 8000 square foot facility is undersized and not equipped to support an expanding Corps environmental mission. Present facilities necessitate the transportation of samples between buildings which increases the probability of spills and contamination problems. Also there is potential for non-compliance with safety and environmental requirements for disposal of samples. A new analytical chemistry facility is needed with the capability for accuracies in the parts per quadrillion with separate ventilation systems and a "clean room" operation and with segregated waste stream collection, handling and pretreatment prior to disposal. These capabilities are required for health and regulatory risk-based hazard assessments. The proposed facilities will provide 20,000 square feet of space with a state-of-the-art analytical chemistry laboratory, modern organic and inorganic analysis laboratories, high hazard (dioxin, radiation, and chemical agent) laboratories, quality control laboratory, and will eliminate current logistics hazard of sample transfer between buildings and allow for disposal of samples with methods in compliance with safety and environmental requirements. An economic analysis was conducted on three scenarios, including status quo, leasing, and construction of a new facility, with the new facility providing a savings to investment ratio of 4.74 and a discounted pay back period of 6.5 years. No Corps, and few commercial, facilities exist to perform methods development research and analysis of dioxin, radiation and other extremely hazardous and toxic materials. Without these facilities, the Corps' cost of doing business for environmental related missions will escalate. Similar impacts, i.e. increased costs, can be expected for any analysis requiring "clean room" facilities , radiation analysis and chemical agent research. Also, if construction is delayed significantly, timely environmental and high hazard remediation assessments will be hindered. Total estimated cost: $6,500,000.

2082

18 MAR 1996

Through FY 1996: $692,000 to complete design. FY 1997: $2,500,000 to initiate construction. FY 1998: $3,308,000 to complete construction.

(3) Clock Tower Building Additions and Betterments - Rock Island District (Continuing): The Clock Tower Building was constructed in 1865, occupied by the Corps in 1934, and has been a Corps owned facility since 1941. Some renovations were started on the third floor in 1983 however, no major renovation work has been accomplished in this facility for over 50 years. Renovation efforts will include the insulation of exterior walls to meet energy conservation goals; installation of new energy efficient air handling equipment; removal of asbestos insulation from pipes, ducts and flooring; and lowered acoustical ceilings with new lighting to reduce the 15 foot high existing ceilings and to provide adequate lighting for an administrative office environment. Restrooms will be modified to be handicap accessible and modern water saving fixtures will be installed. The existing wooden stairway will be restored to meet current fire codes and will include installation of fire-resistant walls and flooring, self-closing fire rated doors and frames, smoke and heat detectors and emergency lighting. All of the proposed modifications are minimum essential requirements to correct known deficiencies and provide adequate working conditions for Corps employees. Total estimated cost: $1,002,000. Through FY 1996: $619,000 to initiate design and construction. FY 1997: $220,000 to complete design and continue construction. FY 1998: $163,000 to complete construction.

(4) Additions and Betterments to Building 8000 - Waterways Experiment Station (Continuing): Additions and betterments to the Jamie L. Whitten Building, which houses the Information Technology Laboratory at WES, are required because of the greatly expanded information management mission. The number of information management employees is three times the number which was used to design Building 8000. The added space will be used for CEAP Central Processing Center support, CADD Center support, WESNET Fiber Optics Communications network support, office and equipment for supercomputer support, and Scientific Visualization support. The current inability to locate certain personnel and facilities in Building 8000 causes delays and hardships for scientists and researchers attempting to meet urgent mission requirements. Total estimated cost: $5,000,000. Through FY 1996: $2,700,000 for design and to initiate construction. FY 1997: $2,300,000 to complete construction.

(5) Renovation - Division Laboratory - South Pacific Division (Continuing): The South Pacific Division operates a multi-purpose laboratory for soils, rock mechanics, geologic, concrete and materials, water quality and environmental testing. The laboratory conducts sophisticated and essential testing operations in a primitive wood frame shipyard facility constructed during World War II. In its current state the building violates

2083

numerous building and life safety codes. The dilapidated state of the structure compromises quality control of many environmental tests conducted at the laboratory. The renovation will eliminate safety violations in the areas of dust control, excessive noise, electrical system overloads, fire exits, and asbestos hazards. The replacement of the roof, siding, and windows and the installation of insulation will reduce energy usage in the laboratory as well as building maintenance costs. Because of the magnitude of renovation required, the Division analyzed other options including relocation and new construction. Renovation of the current laboratory facility was found to be the least costly alternative for correcting the difficulties. Total estimated cost: $3,376,000. Through FY 1996: $3,286,000 to continue design and construction. FY 1997: $90,000 to complete design and construction.

b. Dredges - None

c. Other Floating Plant:

(1) Towboat GRAND TOWER Replacement - St. Louis District (New): The existing vessel GRAND TOWER is a twin-screw diesel-powered towboat constructed in 1970. The GRAND TOWER is 24 years old and has reached the end of its useful service life. Hull integrity is marginal due to thin plating. Diesel engines are 10 years old and will require major overhaul within the next 3-5 years. The GRAND TOWER is used for a variety of towing work in the St. Louis District. It is used to tow a crane barge to locks on the Mississippi River for use in miter gate pulls, removal of drift and repair of gate operating machinery. The existing vessel is also used during repair work to switch floating plant such as the Derrickboat SEWELL, Spare Miter Gate Barge and Crane Barge Number 1. As the fleet service boat, the GRAND TOWER is used to switch boats and barges at the Service Base Fleet into position for repair work, arrival, departure and material handling. At times, the GRAND TOWER is the only vessel available at the Service Base to respond to distress situations such as man overboard, loose barges from upstream, and retrieval of Corps floating plant which sometimes breaks loose. Total estimated cost: $1,701,000. Through FY 1996: $124,000 to initiate design. FY 1997: $1,395,000 to complete design and to initiate construction. FY 1998: $182,000 to complete construction.

(2) Fuel Oil Barge 4315 Replacement - Vicksburg District (New): A replacement 336,000 gallon fuel oil barge in support of revetment functions on the Mississippi River and Tributaries (MR&T) projects is required to meet the requirements of the Oil Pollution Act of 1990 (OPA-90). OPA-90 requires that all fuel barges in use in 2002 be double-hulled. The existing Corps owned fuel barges are 35 years old and nearing the end of their useful life. Retrofitting these barges with double hulls would require a complete

2084

replacement of the hull plate, bilge knuckles, side and rake plates, hedgelogs and deck plates. This option is not economically feasible. The Vicksburg Mat Sinking Section uses approximately 1,000,000 gallons of fuel in a 3 month period. This fuel is consumed on project locations from Cairo, Illinois to Venice, Louisiana (945 miles). Towboats and revetment plant are constantly moving from one location to another between these two points. The proposed acquisition of a replacement fuel barge will meet OPA-90 requirements, satisfy fuel needs and ensure the timely delivery of fuel to sustain mat sinking operations. Total estimated cost: $1,050,000. Through FY 1996: $50,000 to initiate design. FY 1997: $500,000 to complete design and to initiate construction. FY 1998: $500,000 to complete construction.

(3) Tug PALMYRA and Launch PAULSBORO Replacement - Philadelphia District (New): This proposed project will replace both the PALMYRA (constructed in 1953) and the PAULSBORO (constructed in 1968) with one modern, twin screw, 400 HP, 45 foot, steel hulled motor launch/tugboat. The new vessel will work with the larger Tugboat PILOT (which has also been proposed for replacement) and will be utilized in conjunction with the Crane Barge TITAN in installing and maintaining submerged pipeline for dredging operations in the Delaware River and Chesapeake and Delaware Canal. Due to their age, both the PALMYRA and PAULSBORO require frequent maintenance and their repair parts are difficult to acquire. Both vessels are single screw which provides limited maneuverability. The twin screw replacement vessel will have an enhanced capability to maneuver the TITAN, other work barges and pipeline rapidly and safely. The replacement vessel will also be capable of transporting crew and equipment to and from work sites within the district. The estimated annual savings of replacing rather than continuing to maintain the PALMYRA and PAULSBORO are more than $50,000. Total estimated cost: $1,130,000. Through FY 1996: $132,000 for design. FY 1997: $500,000 to initiate construction. FY 1998: $498,000 to complete construction.

(4) Tender KANKAKEE Replacement - Rock Island District (New): The KANKAKEE is a twin screw towboat built in 1948. It is used on the Illinois Waterway to move the maintenance fleet between work sites and as a switchboat at work sites. The existing Tender KANKAKEE is fully depreciated and has reached the end of its useful service life. Not replacing the boat soon will require either (a) a series of repair/replacements to hull, engines and transmission costing over $300,000 or (b) deadlining the boat and leasing another boat, if one can be found. At best the repairs would extend the life of the boat only ten to fifteen years before other major components would need replacement or overhaul. The design for the Tender KANKAKEE is scheduled to be used for the replacement of the Tender MONMOUTH. Our economic analysis indicates that annual costs of leasing are approximately $120,000 more than annual costs of acquiring a replacement tender. In

2085

fact, the cost of leasing exceeds the cost of ownership after only seven years. Total estimated cost: $3,639,600. Through FY 1996: $117,100 to continue design. FY 1997: $3,367,500 to complete design and to initiate construction. FY 1998: $100,000 to continue construction. Future Years: $55,000 to complete construction.

(5) Tender MONMOUTH Replacement - Rock Island District (New): The MONMOUTH is a twin screw towboat built in 1943. It is used by the Mississippi River Structures Maintenance Section as a switchboat at work sites. The existing Tender MONMOUTH is fully depreciated, has reached the end of its useful service life, and is too small to meet mission requirements effectively.. The hull has been repaired twice already and another repair will be needed soon to keep it operational. At best, the repair would extend the life of the boat ten years before other major components would need replacement or overhaul. Major repairs are not economical. Deadlining the existing boat, leasing another boat, if one can be found, or replacement are the options. Our economic analysis indicates that annual costs of leasing are approximately $120,000 more than annual costs of acquiring a replacement tender. In fact, the cost of leasing exceed the cost of ownership after only seven years. Total estimated cost: $3,646,600. Through FY 1996: $117,000 to continue design. FY 1997: $3,374,600 to complete design and to initiate construction. FY 1998: $100,000 to continue construction. Future Years: $55,000 to complete construction.

(6) Crane Barge 763 Replacement - Rock Island District (New): Crane Barge 763 consists of a crawler crane mounted on a spud barge which is used on the Mississippi River for maintenance and repair of wing dams, closure dams, and other dock structures; repair of lock and dam spillways, overflow sections, and non-overflow sections; strike removal; and miscellaneous channel improvements. The barge, which was built in 1955, was surplused because it was determined to be structurally unsound. Currently, the district is using a rental unit, but its availability beyond the end of the current contract period is unlikely because the owner has indicated that he intends to use the barge himself. Our economic analysis indicates that acquisition of a replacement barge would save almost $10,000 annually over the cost of leasing, if a barge could be leased at the current low lease rate. Total estimated cost: $1,816,000. Through FY 1996: $66,000 to initiate and complete design. FY 1997: $750,000 to initiate construction. FY 1998: $1,000,000 to complete construction.

(7) Replacement Work Layout Barge - Rock Island District (New): The work layout barge, which is used by the Mississippi River Structures Maintenance Section for layout and repair of structural components of locks and dams, is one of the most critical pieces of floating plant for restoration of gate and lock operations to normal condition. The

existing barge, which was constructed in the early 1950s by modifying two deck cargo barges and welding them together, has reached the end of its economic life. It has numerous hull cracks that leak and must be constantly monitored, and is difficult to tow because it does not have standard dimensions and its draft is irregular. A long term repair of the hull is not feasible because of the condition of the steel and temporary repairs to keep the barge serviceable are costly and of questionable value because of metal fatigue. A barge of the size and draft needed by the Rock Island District for work layout operations cannot be leased or rented. Our economic analysis indicates that acquisition of a replacement barge would save almost $20,000 annually over the cost of leasing, if a barge could be leased. Total estimated cost: $1,841,700. Through FY 1996: $65,000 to initiate design. FY 1997: $1,776,700 to complete design and construction.

(8) Gate Lifter Crane (Derrickboat) - Louisville District (Continuing): The Ohio River and its tributaries provide over 2500 miles of navigable channel. About 240 million short-tons in 1990 were moved by barge traffic on the Ohio. The system includes 60 navigation lock and dam facilities which range in age from 10 to 150 year. Since 1960, system-wide tonnage has more than doubled. This increased usage also results in increasing maintenance needs, closure costs have become higher and disruption to lock users is becoming more significant. Presently, repair and maintenance can typically involve replacement of miter and quion contact blocks, replacement of pintles and gate painting. The whole process to allow this involves dewatering the chamber, jacking the gate "in-place" with temporary structural support, doing the repairs or maintenance "in-the-dry", and then realignment of the whole gate to within 1/8 inch tolerances. This is tedious and time-consuming. Currently, doing both ends of the lock totals 35-42 days which involves trimming all time to the bare minimum using specialized equipment. Only marginal further reductions in overall closure time are possible using the current process. Navigation accidents can potentially require complete replacement of gate leaves. Presently, no spares are available and a new gate takes 3-6 months to fabricate. Fourteen options were considered. The selected option changes the whole process. It involves swapping gates and then doing gate work away from the lock chamber. To implement this change, each lock requires the following: purchase of one pair of spare gate leaves; design and construction of storage and work areas for spare gates; design and modification of miter and quion contact blocks and wall quion contact blocks to quicken repairs and alignments; modification of existing gates to allow lifting by cranes; and, modification of the existing gate anchorages to allow faster gate removal. To actually swap the gates. Louisville District will purchase a 700 ton barge-mounted gate-lifter crane to be shared by all locks on the Ohio River or elsewhere as needed. For scheduled major repairs, the closure time savings per lock per event will be 20 to 25 days with the new process. An economic model computed system wide transportation savings from implementation of the

23-577 96 - 67

2087

selected option. The costs include the crane and all modifications for the gate-change-out capability at the locks. The net benefits are about $13 million annually for a 50 year project life. The benefit/cost ratio is 4.0. A crane with the versatility and capacity needed cannot be rented. The crane will be purchased by a competitive proposal process with a design/build contract. This should allow crane manufacturers to propose standard equipment meeting our specifications. Particular emphasis is placed on compatibility with the unique features of the structures served during its 50 year life. To insure this, a team of experienced personnel will develop performance and evaluation criteria. Over 25% of the design effort was complete by the end of FY 1994. Total estimated cost: $13,500,000. Through FY 1996: $7,000,000 for design and to initiate construction. FY 1997: $6,500,000 to complete construction.

(9) Crane Barge No. 1 Replacement - St. Louis District (Continuing): Crane Barge No. 1 with Crawler Crane/Dragline is used at the locks and dams on the Mississippi River for repair work such as placing stone in scour areas, replacing worn out machinery, and assisting in miter gate changes. Often this repair work is performed under emergency conditions requiring a quick response. The barge/crane unit is also used at the Service Base for repair work on lock miter gates, the Dredge POTTER and attendant plant, and other floating plant. The crane barge is towed by the towboat GRAND TOWER to work locations. Other work involves drift removal at the locks and dams and the Service Base. The existing barge is 37 years old and the dragline/crane is 20 years old. The original hull plating on the barge is thin due to its age and wear and tear from years of use around the locks and dams. All major components on the crane are original and failure can be expected at any time. Gears are heavily worn and the engine is consuming an excessive amount of oil. Continued need exists for the barge/crane unit. A standard design crane barge has been developed by the Marine Design Center for use in several Districts. It is planned to use this vessel indefinitely. An hourly rental rate of $130.00 has been calculated for the use of this new vessel. The rental rate for the existing vessel is $115/hour, but the new vessel will have increased capacity for lifting operations which will increase its efficiency. The economic analysis shows that acquisition of a new barge will save $607,000 over the life of the new barge when compared with the costs of operating and maintaining the existing vessel for a similar period of time, given its age and deteriorated condition. Total estimated cost: $2,000,000. Through FY 1996: $95,000 to complete design and initiate construction. FY 1997: $500,000 to continued construction. FY 1998: $1,395,000 to continue construction. Future Years: $10,000 to complete construction.

(10) Towboat Replacement - Little Rock District (Continuing): A replacement towboat is essential for timely response in emergency situations, to increase number of

2088

18 MAR 1996

days of maintenance, to operate during periods of high river flows, and to reduce Industrial Delay Cost. The existing towboat PINE BLUFF is a twin screw boat built in 1970 prior to the opening of the Kerr-McClellen Arkansas River Navigation System and is powered with two 230 horsepower diesel engines. Experience has shown this vessel to be greatly undersized and underpowered to cope with the high river flows and to meet the assigned mission in a safe manner. The Little Rock District has little or no ability to meet emergency situations or to reduce potential damage resulting from marine accidents and flood conditions. The proposed replacement towboat would have rated engine capacity of approximately 1800 horsepower, which would allow operations during times of high flows when most maintenance problems and emergency conditions occur. This would reduce the number of potential nonproductive days from 103 to 12 per year. Based on an economic life of 30 years for the replacement vessel and an annual interest rate of 8.25%, the Benefit to Cost Ratio is 1.81 to 1.0. This replacement is expected to save $1,014,700 in non-productive time, $491,800 in reduced per diem cost, $4,235,600 in industry delay costs, and $85,000 in costs to rehabilitate the present vessel. Total estimated cost: $3,240,000. Through FY 1996: $320,000 to initiate design and construction. FY 1997: $2,070,000 to continue design and construction. FY 1998: $850,000 to complete design and construction.

(11) Replacement Towboat - Mobile District (Continuing): A replacement vessel is required to push a recently acquired floating crane and to provide quarters for its crew of five. The combination floating crane and towboat will replace a like combination which until recently was being provided by a navigation maintenance contractor. This replacement towboat when used in conjunction with the newly acquired floating crane will support lock repairs, snagging and other maintenance missions on multiple projects of the Columbus Area Office. The current towboat is being furnished under a cost plus award fee contract arrangement. Under the present leasing agreement, the basic lease cost and all maintenance costs are paid by the Corps. In addition, a fixed base award fee, an incentive award fee and the cost of home office overhead are also incurred by the Corps. The acquisition of a replacement towboat would relieve the Corps of the base award, incentive award and overhead costs. Cost avoidance in the first year with a replacement vessel will exceed $33,000. Future savings would vary with inflation, however, the cost advantage of Corps ownership would continue to be very substantial. The acquisition plan for this replacement towboat will utilize the two step procurement developed for procurement of an identical vessel for the Vicksburg District. Total estimated cost: $3,836,000. Through FY 1996: $1,911,000 for design and to start construction. FY 1997: $1,925,000 to complete construction.

(12) Replacement for Patrolboat - St. Louis District (Continuing): The Patrolboat

2089

PATHFINDER is a 35 year old multipurpose vessel used for channel patrol work as well as towing the derrickboat SEWELL, spare miter gate barge and fuel barges for the Dredge POTTER. It is the only vessel of this type in the St. Louis District. The vessel is underpowered for existing requirements including towing the SEWELL and the newly acquired spare miter gate barge. In addition, the PATHFINDER will likely require rehabilitation of major systems within the next few years, including replacement of the engines, and electrical and mechanical systems such as the generator sets, steering mechanism, and heating and cooling systems. It is also possible that the hull, which was last replated in 1981, will require replating in the same time frame. Total estimated cost: $2,288,000. Through FY 1996: $2,278,000 to complete design and continue construction. FY 1997: $10,000 to complete construction.

(13) Replacement Survey Boat - Norfolk District (Continuing): A 65-foot survey vessel, capable of operating in the Chesapeake Bay and its tributaries and offshore on the Virginia Coast, is needed by the Norfolk District as a replacement for the 32-year old survey boat ADAMS, which has reached the end of its economic life. It is essential that the new vessel be placed into service before the ADAMS deteriorates to a point where it is unable to perform its functions safely and effectively. The vessel operates 250 days a year in order to perform surveys on the deep draft channels of Hampton Roads, James River, and Chesapeake Bay. Due to the long distances to work sites and its slow speed of 8 to 10 knots, many man-hours of work are lost to travel time. Further, the potential for breakdown combined with its low speed, jeopardizes the safety of personnel, especially when encountering fast-moving severe storms. The execution of the Norfolk District dredging program requires accurate and timely surveys. These surveys are used for contract payments, disposal area management, shoaling analysis, budget preparation, project condition surveys and other types of oceanographic studies. Total estimated cost: $1,600,000. Through FY 1996: $1,515,000 for design and to continue construction. FY 1997: $85,000 to complete construction.

(14) Replacement Survey Boat - New York District (Continuing): A 65 foot survey vessel, capable of operating in the sea water, is needed, as a replacement for the survey boat HATTON, which was built in 1960 and has reached the end of its economic life. It is essential that the new vessel be placed into service before the HATTON deteriorates to a point where it cannot perform its functions safely and effectively. The plating on the HATTON has already rusted to half its original thickness at various places. The cost of operating the HATTON will increase dramatically in the next few years as electrical, hull, deck and structural replacement becomes necessary. More frequent breakdowns are expected. To monitor ocean dumping in accordance with Criteria in the Marine Protection, Research and Sanctuaries Act of 1972 (Ocean Dumping), and with the proposed MOA between EPA-USACE,

2090

18 MAR 1996

the Corps requires a faster and more effective boat than the HATTON, a vessel capable of operating in higher than normal sea states is necessary. If the HATTON is not replaced, it will seriously impact the ability of the New York district to fulfill its mission of maintaining the Federal channels under authority of the River and Harbor Acts. Total estimated cost: $1,600,000. Through FY 1996: $1,515,000 for design and to continue construction. FY 1996: $85,000 to complete construction.

d. Fixed Land Plant:

(1) Document Imaging - Corpswide (New): The Corps has conducted a pilot test to evaluate the feasibility of using the latest commercially available technologies to provide Corps offices greater access, storage and retrieval capabilities; develop appropriate policies, standards, and procedures; and determine the most cost-effective solution compatible with the Corps of Engineers Automation Plan (CEAP) architecture. The integration of optical disk and imaging (ODI) technologies allows documents, engineering drawings, photographs, real estate maps, etc., to be digitized, stored, and retrieved simultaneously by multiple individuals. This information can be shared locally within a district on local area networks and eventually, Corps-wide via the CEAP network. The benefits are increased productivity due to the savings from ready access to documents and other digitized material, and reduced space requirements due to a reduction in paper storage. Based on pilot test results, the Corps estimates a 5% increase in productivity and a 5% reduction in physical storage space. Space reductions alone, from eliminating file cabinets, could save up to $15 million over five years if this technology were implemented Corps-wide. In addition, document creation time will be reduced because documents and drawings which are stored electronically can be revised to meet future requirements. The implementation of ODI will also provide less quantifiable benefits such as improved decision-making and more responsive service to external customers because information is available in seconds or minutes rather than hours, days or weeks. The projected cost-benefit ratio is greater than 1:2. The Corps plans to conduct a prototype test at its St. Paul District to validate its implementation strategy and the productivity and space savings used in its economic analysis. Total estimated hardware and software investment cost: $12,200,000. Through FY 1996: $200,000 to complete pilot test. FY 1997: $2,000,000 for hardware and software acquisitions. FY 1998: $2,500,000 for continued hardware and software acquisitions. Future Years: $7,500,000.

(2) Operations and Maintenance Business Information Link (OMBIL) - Corpswide (New): The Operations and Maintenance (O&M) policy and procedures study found that existing O&M legacy data systems were not readily accessible, tied together or standardized. Furthermore, the study found that to achieve the program objectives of decentralized

2091

decision making and performance measurement, accurate data must be easily and readily accessible at all levels of the Corps and in particular, the Project Manager level. OMBIL is designed to link together and/or create interfaces among existing data systems, including the Automated Budget System(ABS), Corps of Engineers Financial Management System (CEFMS), Lock Performance Monitoring System (LPMS), Dredging Information System(DIS), Natural Resources Management System (NRMS), Visitor Estimating and Reporting System (VERS), and Regulatory Analysis Management System, using commercial off-the-shelf software (COTS) to provide project managers a single point of access for performance measurements, project management data and program execution. This proposed system will be utilized in direct support of the Corps Civil Works Operations and Maintenance Program and will inevitably encompass all O&M projects and program managers. Total estimated cost: $4,500,000. Through FY 1996: $100,000 to initiate concept exploration and definition. FY 1997: $1,000,000 to complete concept, validation and to initiate development. FY 1998: $2,000,000 to complete development and initiate deployment. FY 1999: $900,000 to complete deployment.

(3) Water Control Data Systems (WCDS) Software Development - Corpswide (New): This software modernization effort involves the development of a standardized suite of software which all Corp activities will use to monitor, manage and operate the Corps water control facilities nationwide. This modernized UNIX driven, workstation based automated information system will utilize the Corps standard database management system, ORACLE, and the Corps of Engineers Automation Plan (CEAP) network for moving data and information within the Corps. This modernization will greatly improve the Corps ability to perform its basic water management mission including water control decision making by improving hydrologic forecasting and making water control data universally available to all Corps users and Corps customers. These improvements will increase all project benefits (flood control, water supply, navigation, irrigation, hydropower, water quality, and recreation). In addition, this effort will save local software development costs, running in the neighbor hood of $1 million annually. This effort is being managed in accordance with the requirements of the Army's Life Cycle Management of Information Systems (LCMIS) program. The projected Corps-wide benefit to cost ratio is well in excess of unity; a complete economic analysis will be included as part of LCMIS milestone I/II review and approval process. Total estimated software investment cost: $5,000,000. FY 1997 Requirement: $1,250,000. FY 1998 Requirement: $1,250,000. Future Years: $2,500,000.

(4) Video Teleconferencing - Corps-wide (Continuing): The Corps carried out a pilot test of a video communications network to determine the feasibility and advantages of establishing a Corps-wide network, and has implemented a network consisting of the headquarters and each Division office. The primary purposes for a video communications

2092

1 8 MAR 1996

network are increased efficiency, improved communications, and enhanced productivity through greater access to technical experts when and where they are needed. Studies in connection with the pilot test show that a video communications network could save up to 9% of travel costs. Installation at the Headquarters and all major subordinate commands without access to video conferencing owned by other government agencies has been justified independently of the Corps-wide network and was accomplished as a minor acquisition in FY 93 and FY 94. The Corps has developed and disseminated guidance to insure cost effective use of existing video conferencing capability and to facilitate the determination of additional requirements based on increased efficiency, specifically savings in travel and other costs. The Corps is also testing use of less costly phone lines for video transmission to substantially reduce video conferencing line charges. Total estimated cost: $1,857,000. Through FY 1996: $870,000. FY 1997 Requirement: $550,000. FY 1998 Requirement: $237,000. Future Years: $200,000.

(5) Global Positioning Systems - Corpswide (Continuing): This is a grouped item request being presented to indicate overall Global Positioning System (GPS) equipment requirements. There are no single costs in excess of $700,000. Existing geodetic surveying and microwave electronic positioning/navigation systems (e.g., range-range, range-azimuth) are more expensive to purchase and operate than equivalent GPS systems. In addition, many of the older survey systems are currently in need of replacement or are reaching a point where the increased costs of maintenance and repair cannot be justified. GPS systems are employed in functional areas that require surveying, mapping, and collection of geospatial data for Geographic Information Systems (GIS), Computer-Aided Drafting and Design (CADD) systems, and Automated Mapping/Facility Management (AM/FM) systems. These systems directly support engineering, operations (dredging and hydrographic surveying), planning, real estate, and regulatory functions. The acquisition of GPS equipment will prove a significant improvement in accomplishing the Corps Civil Works mission. GPS equipment and systems incur less operational cost than older systems and navigation project surveys can be accomplished in less time. Savings in personnel and time required for survey operations are estimated at 25% per job. Since the Corps spends $40 million each year on hydrographic surveys in support of dredging alone, it is conservatively estimated that the Corps will save more than $10 million per year from the use of GPS equipment to accomplish its surveying and mapping requirements. Total estimated cost: $9,000,000. Through FY 1996: $4,000,000 for acquisition. FY 1997: $1,000,000 for additional acquisitions. FY 1998: $1,000,000 for continuing acquisitions. Future Years: $3,000,000 for acquisitions.

(6) Information Systems Modernization Program (ISMP) - Corpswide (Continuing): The ISMP looks at all major software systems used in the U.S. Army Corps of Engineers with the

2093

18 MAR 1996

goals of reducing data collection, verification and processing costs; reducing systems design, development and maintenance costs; and improving the accuracy, completeness, availability, timeliness and usefulness of information for operational users and decision makers, at all levels and across all functional USACE boundaries. To meet these goals, the Corps redesigns the systems which do not meet current information needs, eliminates redundant and/or unnecessary systems, combines systems with similar functions, and integrates all systems to minimize duplicate data entry and maximize data sharing. The ISMP draws on the knowledge and experience of functional users and the expertise of information management specialists to provide USACE with a new information systems infrastructure that will support the mission of the Corps well into the next century and is consistent with hardware and communications capabilities of the Corps of Engineers Automation Plan (CEAP).

(a) Corps of Engineers Financial Management System (CEFMS). CEFMS is an advanced interactive, real-time, direct data entry, relational database financial management system, which is at the heart of the ISMP. In addition to virtually eliminating duplicate data entry and streamlining data validation, it will be a primary source of data for all other modernized systems. The Corps estimates that CEFMS will pay for itself approximately two and a quarter times over its 10 year life, primarily as a result of workforce savings due to direct data entry, the reduction of duplicate data entry, validation of data at the entry point, and on-line real-time query capability. Total estimated cost: $45,500,000. Through FY 1994: $25,010,000 of centralized account and PRIP funding. FY 1995: $7,780,000. FY 1996: $6,022,000 to complete systems development and initiate deployment Corps-wide, subject to Army Major Automated Information Systems Review Council approval. FY 97: $4,571,000 for continuation of deployment. FY 98: $2,010,000 for completion of deployment.

(b) Program and Project Management Information System (PROMIS). The PROMIS is to function as the primary tool for project and technical managers within the Corps to maintain program and project data. The system provides a single source of all project related information for all programs and projects managed by field commands for the Civil Works and Military Programs Directorates of the Corps. The system interfaces with other modernized systems to assure single source data entry and information sharing and will satisfy all levels of reporting requirements. Total estimated cost: $10,316,000. Through FY 1994 (when development was halted pending reevaluation of the requirement): $6,643,000 of centralized account and PRIP funding. FY 1995 (when development was resumed): $1,945,000. FY 1996: $940,000 to continue systems development and initiate deployment. FY 1997: $788,000 for completion of deployment.

2094

(c) Resident Management Systems (RMS). The immediate objective of this initiative is to complete essential features of the system to ensure complete interoperability among RMS and other Corps-wide automated systems. Critical features in this effort are the modules directly effecting management and administration of quality assurance and quality control reports, finances, payment and contract modifications. Final deployment in FY 97 will enhance systems capabilities to fully support the project management efforts for both Civil and Military construction projects. Additional capabilities will include schedule analysis, data summaries for district construction efforts, communication with PROMIS, a submittal register interface with SPECSINTACT, and a budget module for field construction offices. Documentation of these efforts in accordance with applicable regulatory and statutory guidance will be an on-going effort throughout the stages of development. Total estimated cost: $2,900,000. Through March 1994 (when development was halted pending reevaluation of the requirement): $1,300,000 of centralized account and PRIP funding. FY 1996 (when development was resumed): $950,000 to continue systems development. FY 1997: $650,000 for completion of development and deployment.

(7) Communications Upgrade and Replacement Program (Continuing): This grouped item request has been presented since FY 1985 to indicate the overall Corps' telecommunications infrastructure capital investment annual requirements. There is no single item with costs in excess of $700,000. The Corps of Engineers Civil Works telecommunications resources include a wide variety of communications systems, such as satellite, high frequency single side band radio, communications servers, and private branch exchange systems --all supporting specific communication functions for specific Corps projects and programs. These systems include fixed, floating plant, and vehicular stations which operate in the high frequency (HF) band for long haul communications; the ultra high frequency (UHF) band for fixed station, mobile and vessel communications for point-to-point communications; and, the microwave band for multichannel radio relay communication. A large percentage of these systems/networks have remained operational up to this point in time through the incremental replacement of components within the systems. In addition, the relocation of Corps activities into and within many GSA operated facilities has generated requirements for replacement of existing telephone systems. To insure continuity and the continuing operational capability of these systems, acquisition of replacement systems with the appropriate composition, design, and capacity is continuing. Through FY 1996: $47,500,000. FY 1997 Requirement: $2,000,000.

(8) Water Control Data Systems (WCDS) (Continuing): Equipment acquired under this category is used to collect, process, analyze, and display hydrologic data for the

2095

18 MAR 1996

regulation of water resource projects consistent with authorized project purposes including hydropower generation, navigation and flood control. The data collected is used to make daily regulatory decisions for retention and discharge flow rates for more than 500 water resource projects that include lakes, locks, diversion, and other control structures. The process of collecting, evaluating, and distributing data must be accomplished in a timely manner to effectively support authorized projects effectively. Equipment acquired under this category includes dedicated WCDS computers, measuring devices and telecommunications facilities, display devices, standby power supply facilities, and weather data acquisition equipment. A modernization of the WCDS was initiated in FY 1992. The total estimated cost of this replacement program is $11,700,000. Through FY 1996: $8,200,000. FY 1997 Requirement: $800,000. FY 1998 Requirement: $700,000. Future Years: $2,000,000.

(9) Computer-Aided Design and Drafting Equipment (CADD) (Continuing): Due to the increasing role of CADD and continual improvements in hardware and software, CADD cannot be considered a one time capital investment. It requires timely upgrades and replacements of obsolete and outdated equipment. This includes hardware and software necessary for preparation of engineering drawings, project master plans, topographic data, etc., on projects such as dams, reservoirs, coastal and flood protection, and navigation structures. CADD Systems may include from 1 to 16 work stations, linked to a central mini-computer, complete with keyboard, digitizing tablet, and video display. Printers, plotters, and other peripherals may be shared between work stations. A Corps-wide contract for acquisition of CADD equipment was awarded in September 1987. By FY 1990, 36 Corps Field Offices will have purchased CADD systems through the contract. Corps-wide acquisition of CADD maximizes economies of scale benefits. CADD systems in the engineering and construction industry are evolving at an ever-increasing rate. Presently a cost effective tool for producing contract documents, the trend in CADD is to make drafting a by-product of the design process. Utilizing database technology, CADD is fast becoming a viable method of tracking project features from the planning stage into design and construction, and on through operation and renovation. The use of CADD linked to a project database is an important move towards a life-cycle approach to project management. With manpower levels unlikely to improve and a wide variety of new requirements being placed upon us, computer systems must increase employee productivity. Computer aided design and drafting provides an average manpower efficiency ratio of 3.5 to 1 and a benefit to cost ratio of 1.3 to 1. With advancements in design and database software, this benefit ratio will improve. Total estimated capital acquisition cost: $56,500,000. Through FY 1996: $43,500,000. FY 1997 Requirement: $3,000,000. FY 1998 Requirement: $3,000,000. Future Years: $7,000,000.

2096

18 MAR 1996

(10) Corps of Engineers Automation Plan (CEAP) (Continuing): The capital acquisition portion of CEAP was created to replace the Corps mainframe computing hardware consisting of leased Honeywells at the division level and Corps owned Harris computers at the district level. The Corps awarded a contract to the Control Data Systems, Inc. in October 1989 for hardware/software acquisition and support services. The contract was structured for maximum flexibility, not committing the Corps beyond the first year but providing the Corps with 10 annual renewal options. The contract also provided for a pilot test at the Southwestern Division, the Waterways Experiment Station, and the former Headquarter's Engineer Automation Support Activity. Based on pilot and stress test results and a cost comparison of various deployment scenarios, the Corps redeployed pilot test equipment to two large regional processing sites, one in Portland, Oregon and the other in Vicksburg, Mississippi. To maintain a viable corporate-wide system at these two regional sites, the Corps has invested in additional mainframe processing capacity, operating software, additional storage capacity, communications devices, and associated processors to link all Corps sites to the two regional centers. Total estimated cost through FY 2001: $49,600,000. Through FY 1996: $43,800,000. FY 1997 Requirement: $2,600,000. FY 1998 Requirement: $2,000,000. Future Years: $1,200,000.

(11) Recurring ADPE Requirements (Continuing): This grouped item includes general purpose microcomputers, graphics display terminals, interactive terminals, plotters, remote job entry devices, digital communications equipment supporting Corps ADPE. Also included are dedicated word processing centers, microcomputers used for such office functions as word processing, electronic mail, spread sheet applications, small data base applications, local area networks, and communications with main frame computers for storage and retrieval of management information. Recurring ADPE is utilized to improve the interfaces between separate computer configurations, to improve the communications transmission capability, and to replace ADPE that has reached the end of its useful life. Microcomputers are justified on a cost benefit basis to support both management and business, and scientific applications. The demand for quick access to accurate information at operational levels has generated requirements for ADPE in functional areas where it was previously absent or in functional areas where modern upgrade is required. All recurring ADPE requirements will be reviewed for consistency with the Corps of Engineers Information Systems Management Plan. FY 1997 Requirement: $4,000,000.

e. Tools, Office Furniture and Equipment

Initial Outfitting - USACE Finance Center (New): The USACE Finance Center (UFC), which was established in October 1994, will consolidate all operating finance and

2097

18 MAR 1996

accounting functions into a single activity at one location. This consolidation is in accordance with Department of Defense Directive DMRD-910 which requires the establishment of centralized finance and accounting operations, and the location of the UFC in Memphis, TN, in a facility available on the Millington Naval Air Station, is consistent DOD implementation of DMRD-910. This outfitting effort includes fax machines, copiers, printers, personal computers, and systems furniture with associated electrical and computer network cabling. The alternatives to acquiring new furniture and office equipment for the UFC are moving furniture and equipment with Corps employees who will be relocating to Memphis as part of the consolidation, or leasing the required furniture and equipment. Both of the alternatives are more costly than it would be to outfit the UFC by acquiring new furniture and equipment. Furthermore in some cases moving furniture or equipment would not be feasible because it would not be compatible with other available furniture and equipment. Total estimated cost: $3,125,000. Through FY 1996: $650,000 for personal computers and peripherals needed to outfit the initial complement of personnel relocated to the center. FY 1997: $2,475,000 to complete acquisition of remaining equipment and for systems furniture.

2098

18 MAR 1996

APPROPRIATION TITLE: Oil Spill Research, FY 1997

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY 1997-2001) Program Cost	$5,800,000
Appropriation Requested for FY 1997	850,000
Balance to Complete Five-Year Program after FY 1997	4,950,000
Appropriation for FY 1996	850,000
Increase of FY 1997 from FY 1996	0

JUSTIFICATION: Title VII of the Oil Pollution Act of 1990 authorizes use of the Oil Spill Liability Trust Fund to perform oil pollution research. Oil spills represent a major environmental hazard with potential long term consequences. When a spill occurs, remote sensing is the most appropriate tool to locate, monitor, and describe the spill because of its ability to cover large areas, provide geographical reference, and to describe the oil characteristic and location for cleanup. Remote Sensing techniques specifically for oil spill sensing are limited. Sensors and procedures to acquire, analyze, and distribute results to decision makers and operations personnel is of critical concern for clean up operations of man-made and natural disasters. An integrated approach needs to be developed that includes (1) data collection using airborne and satellite sensors, (2) analysis techniques that can rapidly store and analyze very high data rates, and (3) modeling and display techniques that can provide real time output for allocation of assets in clean up operations.

The focus of the Army Corps of Engineers research effort is in the development of an advanced data acquisition system, data management systems, and display technologies utilizing satellite and/or aircraft imaging data for map generation for the on-scene spill coordinator. These management tools will be "near real-time", accurate, and focused for optimal allocation of resources and timely response to the specific oil spill situation. The research will include on and near shore environments, ocean systems, and inland waterways and streams.

2099

1 8 MAR 1996

APPROPRIATION TITLE: Oil Spill Research, FY 1997 (cont)

MAJOR FEATURES OF THE FY 1997 PROGRAM: Operational sensors capable of measuring and monitoring oil on land and in water regimes will be validated for desired sensitivity. Continuing sensor research will be conducted to evaluate emerging technologies, and to define spectral characterization of oil types. Issues include evaluation of sensors under varying atmospheric and environmental conditions. Sensors will be tested from operational aerial platforms to validate sensor-platform interoperability. Platform testing is critical for determination of operational procedures and criteria. Location definition will be accomplished by integrating GPS with sensor data to provide positioning accuracy. Inflight location and delineation will provide navigational aid for clean-up operations. Inflight software will be defined to provide rapid analysis and display of sensor and location data. System structure will include physical operational constraints and instantaneous processing for inflight detection, delineation, and characterization. Telemetry systems for data transfer from aircraft to control and operational vessels will be tested. Data and communication requirements for command-and-control and for use in dispersion models will be addressed. Dispersion model with specified data inputs and outputs for the On-Scene-Commander will be tested. Model criteria to include data management and model output integration for operational and contingency operations will be evaluated. The operational Corps data base for oil spill response will be established and aligned with Coast Guard support structure. Studies of oil spill response will be completed by academia to define assets, operations, and critical concerns. Study results will define local concerns and areas of interest for oil spill mitigation and readiness. Major features include testing and demonstration of the sensors, compatibility of sensors with operational platforms, integration of GPS with sensors, in-flight analysis, data telemetry, data compatability with command structure, analysis and oil dispersion models, Corps support data base fielding, and external academic review of oil spill mitigation and remediation.

ACCOMPLISHMENTS IN FY 1996:

1. Tested and demonstrated existing remote sensors for delineation and characterization of oil.

2. Tested remote sensors in an airborne system.

3. Evaluated inflight data for detection, delineation, and characterization of oil.

APPROPRIATION TITLE: Oil Spill Research, FY 1997 (cont)

4. Integrated GPS with inflight data.

5. Evaluated transmission of oil spill information to cleanup vessels.

6. Incorporated data into dispersion models.

7. Tested integration of Corps asset data base for oil spill clean up partnering with the Coast Guard.

2101

1 8 MAR 1996

PROGRAM TITLE: Support for Others, FY 1997

JUSTIFICATION:

Support for Others (SFO), the manpower for which is separately resourced by the Office of Management and Budget, is reimbursable work performed by the Army Corps of Engineers and funded by various Federal agencies, states, political subdivisions of states, and other entities, under applicable Federal law. The program fills a void for many agencies which do not have adequate capability to execute the engineering related needs of their missions or manage the engineering or construction contracts with private firms. The reimbursable assistance the Army Corps of Engineers provides is typically related to technical oversight and contract management.

In FY 1997, the Army Corps of Engineers estimates support will be provided to over 50 various Federal agencies. The estimated dollar value of our efforts and the resulting construction is estimated to be $645 million. The actual program size will depend on several factors: the requesting agency's appropriation which is often not known until the first quarter of the fiscal year, final agency decisions made on how and when the appropriated funds will be dispersed for projects, and the magnitude of natural emergencies.

MAJOR FEATURES OF THE FY 1997 PROGRAM:

The work consists of one large (>$300 million) reimbursable program [for the Environmental Protection Agency (EPA)] and support to 50+ other Federal agencies and state/local governments ranging in size from a few thousand to approximately $40 million. The Corps supports EPA on its Superfund and Construction Grants programs as well as performing review and coordination of the planning, design and construction of EPA facilities.

Examples of work for other Federal agencies in FY 1997 include project management, design, review and construction management for the renovation of the General Accounting Office headquarters building; construction grant monitoring for the Department of Housing and Urban Development; design and construction of facilities for the Immigration and Naturalization Service; and study, design, engineering, or construction assistance for various Department of Interior subagencies such as the National Park Service, the Fish and Wildlife Service, and the Bureau of Indian Affairs.

MAJOR FEATURES OF THE FY 1997 PROGRAM (Continued):

A potentially large and unpredictable program is that for the Federal Emergency Management Agency (FEMA). The largest component support to FEMA occurs as a result of natural disasters where the type and magnitude of support is unpredictable. The Corps also performs flood insurance studies and related technical assistance to support the Federal Emergency Insurance Program and hurricane evacuation studies and underground storage tank removal at Emergency Broadcast System sites throughout the United States.

ACCOMPLISHMENTS IN FY 1996:

The Corps executed approximately $700 million in support of other agencies' programs in FY 1996 which includes the following examples: Environmental Restoration related work - $340 million of work related to the EPA Superfund program and $100 million of environmental restoration work for other agencies; Facilities and infrastructure related work - $250 million of work related to engineering, design and construction such as the design and construction of the Fish and Wildlife Service's National Education and Training Center (NETC), the modernization of the John F. Kennedy Center for the Performing Arts, housing and control tower construction for the Federal Aviation Agency and facility design and construction for the Department of Energy's Pantex facility.

AUTOMATION COSTS

General: The Army Corps of Engineers utilizes automated information systems in all phases and aspects of its operations from the planning and design of Corps projects through their operation and maintenance; from the collection and analysis of hydrographic data to control flows in the nation's rivers to the management of fiscal and human resources; and from the search for legal precedents to the review of construction contractor performance histories. Expenditures for automated information systems include acquisition of commercial software packages and the design and development of applications to meet unique engineering requirements; the acquisition of personal computers for use on engineers' desks and of mainframes for processing centers used by thousands of employees; and the leasing of long distance lines for E-mail and high speed transfer of engineering and other data between Corps sites.

Projected FY 1997 automation costs are displayed under three main categories: acquisition of hardware and associated commercial off-the-shelf software (COTS), automated information systems (AIS), and personnel.

Hardware. Table A shows projected hardware and associated COTS acquisition costs for FY 1997. About 20 percent of the costs for the acquisition of hardware which supports Civil Works programs are included in the Revolving Fund Plant Replacement and Improvement Program (PRIP) under one of several items of Fixed Land Plant: Corps of Engineers Automation Plan (CEAP), Water Control Data Systems, Computer Aided Drafting and Design (CADD), and Recurring ADPE Requirements. For FY 97 the Corps has programmed $10.4 million of Revolving Fund resources for these four items as shown in the Revolving Fund PRIP section of the Remaining Items justification sheets. In addition to the $3 million identified for additional capital acquisitions under CEAP, approximately $11.4 million will be required in FY 97 to operate and maintain the two data processing centers and for the communications network linking Corps sites with these centers.

The remaining Civil Works requirements for automation hardware are for items such as engineering work stations, file servers, personal computers, printers and other peripheral equipment costing less than $25,000 or items which will be utilized only in support of a single project, including research and development activities at Corps laboratories, and will be acquired with project funds. Such items are not eligible for Revolving Fund PRIP financing since they do not meet the threshold for capitalization, or do not support more than one project. The estimated FY 97 Civil Works requirement for engineering work stations, printers and other peripheral equipment to support technical, scientific and

2104

18 MAR 1996

engineering staff is $13.9 million; for personal computers, printers and other peripheral equipment to support office automation and other general purpose office automation requirements is $15 million; for file servers, printers and other peripheral equipment which support data communications is $7.6 million; and for engineering work stations, file servers, personal computers, printers and other peripheral equipment to support automated information systems is $11.9 million. Funding for these items will be either through the General Expenses appropriation, district or laboratory overhead accounts, or specific Civil Works programs or projects.

Software: Table B shows estimated FY 97 Civil Works funding requirements to support automated information systems (AIS). These AIS have been grouped by whether they are in use Corps-wide or were developed to meet local requirements. Corps-wide AIS have also been grouped by their role in the design, construction, operation and maintenance of Corps projects, and management of the Civil Works program. Included among the AIS are the two systems in the Corps Information Systems Modernization Program (ISMP), the Corps of Engineers Financial Management System (CEFMS) and the Program and Project Management Information Systems (PROMIS), currently under development, which are included in the FY 97 Revolving Fund PRIP request. The difference between the FY 97 requirements for these systems reflected in Table B and the amounts shown in the Revolving Fund PRIP portion of the Remaining Items justifications are maintenance costs during deployment which should not be capitalized in the PRIP.

The AIS requirements include $4.3 million in Corps personnel costs which are also reflected in Table C.

Personnel. Table C is an estimate, by activity, of the direct labor costs for the professional Computer Specialists, Programmers, Systems Analysts, Programmer Analysts, and the Computer Technicians and Assistants which are charged to Civil Works projects and appropriations, based on actual direct labor costs in FY 1996. Not included are the costs of visual information specialists, photographers, print specialists, librarians, mail clerks, or the budget analysts and other support personnel who comprise a typical Corps information managment office.

2105

18 MAR 1996

TABLE A
HARDWARE ACQUISITION

Item	PRIP Funded	FY 1997 Civil Works Requirement
Corps of Engineers Automation Plan (CEAP)	X	2,600,000
Computer-Aided Design and Drafting (CADD)	X	3,000,000
Water Control Data Systems (WCDS)	X	800,000
Miscellaneous Automatic Data Processing Equipment (costing more than $25,000 and capitalized through the Plant Replacement and Improvement Program)		
Lower Mississippi Valley Division		25,000
Missouri River Division		325,000
North Atlantic Division		425,000
North Central Division		400,000
North Pacific Division		300,000
Ohio River Division		400,000
South Atlantic Division		100,000
South Pacific Division		825,000
Southwestern Division		100,000
Laboratories		750,000
Other Field Activities		250,000
Headquarters		100,000
Subtotal Miscellaneous ADPE	X	4,000,000
Engineering work stations, file servers, personal computers, and other peripheral equipment costing less than $25,000 and therefore not capitalized:		
--scientific, technical and engineering		13,900,000
--office automation and other general purpose		15,000,000
--data communications		7,600,000
--automated information systems support		11,900,000
Subtotal		48,400,000
Total		58,800,000

2106

18 8 MAR 1996

TABLE B
AUTOMATED INFORMATION SYSTEMS

	STATUS	FY 1997 CIVIL WORKS REQUIREMENT
CORPS SYSTEMS		
Engineering		
Automated Coastal Engineering System (ACES)	Maintenance	$105,000
Architect-Engineer Contract Admin Support System (ACASS)	Maintenance	$325,000
Automated Review Management System (ARMS)	Maintenance	$63,000
Computer-Aided Geotechnical Engineering (CAGE)	Maintenance	$400,000
Computer-Aided Structural Engineering (CASE)	Upgrade	$610,000
Computer-Aided Design and Drafting Support Center	Maintenance	$650,000
Equipment Manual	Maintenance	$156,000
Geotechnical Aspects of Computer-Aided Struc Eng (GCASE)	Maintenance	$75,000
Microcomputer Cost Engineering Support Systems (MCACES)	Maintenance	$600,000
Numerical Models	Maintenance	$2,000,000
Pavement-Transportation Computer Assist Struc Eng (PCASE)	Maintenance	$40,000
Construction Criteria Base/Spec Intact (SPECSINTACT)	Maintenance	$150,000
Construction		
Resident Management System (RMS)	New	$932,000
Construction Contractor Appraisal Support System (CCASS)	Maintenance	$90,000
Operations and maintenance		
Bridge Information System (BIS)	Maintenance	$50,000
Bridge Management System (BMS)	Maintenance	$30,000
Dredging Information System	Maintenance	$77,000
Lock Performance Monitoring System (LPMS)	Maintenance	$293,000
Port & Waterways System (PWS)	Upgrade	$113,000
Waterborne Commerce Statistics	Maintenance	$100,000
Prioritizing O&M Maintenance Projects (QUADRANT)	Maintenance	$20,000
Water Demand Forcasting Model	Maintenance	$60,000

2107

16 MAR 1996

TABLE B
AUTOMATED INFORMATION SYSTEMS

	STATUS	FY 1997 CIVIL WORKS REQUIREMENT
Automated User Permit System (AUPS)	Maintenance	$95,000
GET Application System	Maintenance	$20,000
Natural Resource Management System (NRMS)	Maintenance	$10,000
Visitor Estimating and Reporting System (VERS)	Maintenance	$60,000
Water Control Data System (WCDS)	Upgrade	$1,250,000
Operation and Maintenance Business Information Link (OMBIL)	New	$2,000,000
Regulatory		
Regulatory Analysis Management System (RAMS)	Maintenance	$875,000
Project/program management		
Project and Program Management Information Sys (PROMIS)	Replacement	$1,028,000
Real Estate Management Information System (REMIS)	Maintenance	$579,000
Project and Resource Information Sys for Managers (PRISM)	Maintenance	$406,000
Life Cycle Project Management Reporting System (LRS)	Maintenance	$141,000
Civil Work O&M Automated Budget System (CWOMABS)	Maintenance	$300,000
Automated Management and Progress Reporting System (AMPRS)	Maintenance	$45,000
Force Configuration (FORCON)	Maintenance	$300,000
Finance and Accounting		
Corps of Engineers Financial Management System (CEFMS)	Replacement	$3,797,000
Corps of Engineers Management Info System (COEMIS)	Maintenance	$1,296,000
Corps of Engineers Time, Attendance and Leave Sys (CETAL)	Maintenance	$156,000
Corps Operating Budget Resource Analysis (COBRA)	Maintenance	$5,000
Payroll	Maintenance	$226,000
Other		
Automated Manpower Utilization and Requirement System (AMURS)	Maintenance	$28,000
Automated Information Systems Information System (AISIS)	Maintenance	$13,000
Automated Personal Property Management System (APPMS)	Maintenance	$101,000

2108

13 MAR 1996

TABLE B
AUTOMATED INFORMATION SYSTEMS

	STATUS	FY 1997 CIVIL WORKS REQUIREMENT
Vehicle Information Management System (VIMS)	Maintenance	$57,000
Electronic Mail MCX	Maintenance	$539,000
Corps of Engineers Automated Legal System (CEALS)	Maintenance	$783,000
Corps Software Library (CORPS)	Maintenance	$203,000
Corps of Engineers Library Information System (COELIS)	Maintenance	$145,000
Employee Database (EDB)	Maintenance	$1,000
Engineer and Scientist Career Program	Maintenance	$36,000
Reseach and Development Management Information System (RDMIS)	Maintenance	$60,000
Data Encyclopedia	Maintenance	$72,000
Safety Information Management System (SIMS)	Maintenance	$3,000
Requirement Statement Management System (RSMS)	Maintenance	$13,000
Office Automation Support Integrated System (OASIS)	Maintenance	$221,000
Corps Bulletin Board (CORPSBB)	Maintenance	$33,000
STANDARD ARMY SYSTEMS		
Standard Army Automated Contracting System (SAACONS)		$65,000
CORPS LOCAL SYSTEMS		
Lower Mississippi Valley Division		
Computer-Aided Supply Transaction Environment (Division-wide)	Maintenance	$5,000
Illinios Automated Data Acquisition System (St. Louis)	Maintenance	$10,000
Boring Log Microcomputer System (New Orleans)	Maintenance	$4,000
Cannon Dam Performance Monitor (St. Louis)	Maintenance	$7,000
Price Dam Performance Monitor (St. Louis)	Maintenance	$10,000
Wapappelo Dam Performance Monitor (St. Louis)	Maintenance	$15,000
Engineering Division Cost/Schedule Control System (New Orleans)	Maintenance	$15,000
Engineering Division Time & Attendance Program (New Orleans)	Maintenance	$15,000
Disbursement Blotter Register	Maintenance	$2,000
Automated Incident Reporting System (St. Louis)	Maintenance	$20,000

MAR 1996

TABLE B
AUTOMATED INFORMATION SYSTEMS

	STATUS	FY 1997 CIVIL WORKS REQUIREMENT
Engineer Design Project Management System (St Louis)	Maintenance	$25,000
Relief Well Design System (Division-wide)	Maintenance	$2,000
Computer Environ Res Data System (Division-wide)	Maintenance	$13,000
Facility Resources Income Data (New Orleans)	Maintenance	$4,000
Local GIS (New Orleans)	Maintenance	$72,000
Warehouse Inventory Control System (Vicksburg)	Maintenance	$3,000
Lower MS River Survey (Division-wide)	Maintenance	$1,000
Local CADD Support (New Orleans)	Maintenance	$168,000
Missouri River Division		
Construction Management System (Omaha)	Maintenance	$8,000
Finance and Accounting--Local Programs (Division-wide)	Maintenance	$7,000
Power Plant Control System (Division-wide)	Maintenance	$150,000
Power Plant Control System (Division-wide)	Replacement	$3,100,000
Project Maintenance Management System (Division-wide)	Maintenance	$45,000
Text Searchable Document System (Division-wide)	Maintenance	$125,000
HP Maintenance Mgmt Sys for Turner/Stockton (Division-wide)	Maintenance	$4,000
Local CADD Support (Kansas City)	Maintenance	$17,000
Local CADD Support (Omaha District)	Maintenance	$25,000
Local GIS (Omaha District)	Maintenance	$87,000
Local GIS (Kansas City)	Maintenance	$3,000
Cannon-Truman-Stockton SCADA System (Kansas City)	Maintenance	$60,000
Lab Info Mgmt System (Division-wide)	Maintenance	$11,000
Missouri River Automated Data System (Division-wide)	Maintenance	$75,000
Regulatory Analysis Management System (Omaha District)	Maintenance	$33,000
North Atlantic Division		
Project Resource Operating System (Baltimore)	Maintenance	$5,000
North Central Division		

2110

1 0 MAR 1996

TABLE B
AUTOMATED INFORMATION SYSTEMS

	STATUS	FY 1997 CIVIL WORKS REQUIREMENT
Open Plan (North Central Division)	Maintenance	$149,000
Applied Programs Systems (Division-wide)	Maintenance	$18,000
Local CADD Support (Division-wide)	Maintenance	$560,000
Fountain City Database Managment System (St. Paul)	Maintenance	$5,000
Water Control Data System (Rock Island)	Maintenance	$50,000
Operations Maintenance of Navigation Installations (Rock Island)	Maintenance	$65,000
North Pacific Division		
Alaska District Management System (Alaska)	Upgrade	$6,000
Budget Management Systems (Portland)	Maintenance	$46,000
Columbia River Water Temperature Model (Division-wide)	Maintenance	$10,000
Gas Spill (Division-wide)	Maintenance	$5,000
CADD Database Development (Portland)	Upgrade	$110,000
Fishpass (Division-wide)	Maintenance	$5,000
Auto Regulation Prog for SSARR (Division Office)	Maintenance	$1,000
Construction Information Management System (Seattle)	Maintenance	$1,000
Columbia River Operational Hydronet Management Sys (Division Office)	Maintenance	$25,000
Dredged Analysis Information System (Seattle)	Maintenance	$40,000
F&A Data Entry System (Division-wide)	Maintenance	$26,000
Warehouse Inventory System (Portland)	Maintenance	$5,000
Streamflow Synthesis and Reservoir Regulation (NPD)	Maintenance	$30,000
Records Managment Information System (Seattle)	Maintenance	$7,000
Regulatory Imaging Database (Alaska)	Maintenance	$7,000
IM Audiovisual Tracking System (Portland)	Maintenance	$5,000
Preventive Maintenance System (Portland)	Maintenance	$1,000
Hydrographic System Seasonal Regulation (Division-wide)	Maintenance	$15,000
Corporate Data Management System (Seattle)	Maintenance	$16,000
SF-52 Tracking System (Seattle)	Maintenance	$2,000
Automated Manpower Utilization Reporting System (Division-wide)	Maintenance	$13,000

2111

: 5 MAR 1996

TABLE B

AUTOMATED INFORMATION SYSTEMS

	STATUS	FY 1997 CIVIL WORKS REQUIREMENT
Ohio River Division		
APPMS/RM Data Base Reconciliation (Pittsburgh)	New	$1,000
Microstation Utility Programs (Pittsburgh)	Upgrade	$2,000
Nesting Box Database System (Pittsburgh)	New	$3,000
FTE Workyear Reporting System (Pittsburgh)	Maintenance	$1,000
Hydrographic Survey System (Pittsburgh)	Upgrade	$5,000
Geotech Instrumentation Sys (Pittsburgh)	Maintenance	$5,000
Lab Info Mgmt System (ORD)	Maintenance	$1,000
Lab Info Mgmt System (ORD)	Upgrade	$24,000
Navigation Predictive Analysis (Louisville)	Maintenance	$5,000
Preventive Maintenance System (Pittsburgh)	Upgrade	$94,000
Reservoir Profile Graphs (Pittsburgh)	Upgrade	$3,000
South Atlantic Division		
Customer Assistance Center System (Division Office)	Maintenance	$3,000
Career Management Program (Division-wide)	Maintenance	$1,000
Local CADD Support (Savannah)	Maintenance	$57,000
Executive Information System (Jacksonville)	Maintenance	$1,000
Executive Information System (Division Office)	Maintenance	$9,000
Work Request Tracking System (Jacksonville)	Maintenance	$1,000
Teach, Coach and Assist (Division-wide)	Maintenance	$1,000
INCOME (Mobile)	Maintenance	$2,000
Project Related Data Systems (Savannah)	Maintenance	$10,000
Life Cycle Project Management (Jacksonville)	Maintenance	$12,000
South Pacific Division		
Electronic Orange Book (SPL)	Maintenance	$15,000
Project Execution and Tracking System (South Pacific Division)	Maintenance	$34,000
Plan Room Automation (Sacramento)	Maintenance	$2,000
S&A Report (Los Angeles)	Maintenance	$1,000

2112

1 8 MAR 1996

TABLE B
AUTOMATED INFORMATION SYSTEMS

	STATUS	FY 1997 CIVIL WORKS REQUIREMENT
Telemetry Collection (Los Angeles)	Maintenance	$15,000
Operation Budget Execution System (Los Angeles)	Maintenance	$1,000
Auto Telephone Staffing System (Los Angeles)	Maintenance	$15,000
TELEM Reporting Software (Los Angeles)	Maintenance	$10,000
Reservoir Calculation Program (Los Angeles)	Maintenance	$5,000
Emergency Management Information System (Sacramento)	Upgrade	$65,000
Southwestern Division		
Albuquerque Dist Mgmt Info System (Albuquerque)	Maintenance	$2,000
Laboratories		
Vendor Information System (Waterways Experiment Station)	Maintenance	$19,000
CAI for CEFMS (Construction Engineering Resarch Lab)	New	$2,000
Proposal Tracking System (Construction Eng Research Lab)	Upgrade	$1,000
TOTAL		$27,593,000

2113

18 MAR 1996

TABLE C
AUTOMATION PERSONNEL COSTS

ACTIVITY	CIVIL WORKS AUTOMATION PERSONNEL COSTS
HUNTSVILLE ENGINEERING AND SUPPORT CENTER	$53,000
LOWER MISSISSIPPI VALLEY DIVISION	
MEMPHIS DISTRICT	$121,000
NEW ORLEANS DISTRICT	$417,000
ST. LOUIS	$278,000
VICKSBURG DISTRICT	$199,000
DIVISION OFFICE	$129,000
DIVISION TOTAL	$1,144,000
MISSOURI RIVER DIVISION	
KANSAS CITY DISTRICT	$378,000
OMAHA DISTRICT	$504,000
DIVISION OFFICE	$101,000
DIVISION TOTAL	$984,000
NEW ENGLAND DIVISION	$246,000
NORTH ATLANTIC DIVISION	
BALTIMORE DISTRICT	$606,000
NEW YORK DISTRICT	$247,000
NORFOLK DISTRICT	$148,000
PHILADELPHIA DISTRICT	$193,000
DIVISION OFFICE	$30,000
DIVISION TOTAL	$1,224,000
NORTH CENTRAL DIVISION	
BUFFALO DISTRICT	$252,000
CHICAGO DISTRICT	$248,000
DETROIT DISTRICT	$202,000
ROCK ISLAND DISTRICT	$494,000
ST PAUL DISTRICT	$490,000
DIVISION OFFICE	$110,000
DIVISION TOTAL	$1,796,000
NORTH PACIFIC DIVISION	
PORTLAND DISTRICT	$180,000
SEATTLE DISTRICT	$235,000
WALLA WALLA DISTRICT	$353,000
DIVISION OFFICE (Includes Western Regional Processing Center operationas)	$1,701,000
DIVISION TOTAL	$2,470,000

2114

16 MAR 1996

TABLE C

AUTOMATION PERSONNEL COSTS

ACTIVITY	CIVIL WORKS AUTOMATION PERSONNEL COSTS
OHIO RIVER DIVISION	
HUNTINGTON DISTRICT	$320,000
LOUISVILLE DISTRICT	$679,000
NASHVILLE DISTRICT	$174,000
PITTSBURGH DISTRICT	$446,000
DIVISION OFFICE	$40,000
DIVISION TOTAL	$1,659,000
SOUTH ATLANTIC DIVISION	
CHARLESTON DISTRICT	$178,000
JACKSONVILLE DISTRICT	$392,000
MOBILE DISTRICT	$501,000
SAVANNAH DISTRICT	$73,000
WILMINGTON DISTRICT	$269,000
DIVISION OFFICE	$185,000
DIVISION TOTAL	$1,598,000
SOUTH PACIFIC DIVISION	
LOS ANGELES DISTRICT	$783,000
SACRAMENTO DISTRICT	$584,000
SAN FRANCISCO DISTRICT	$260,000
DIVISION OFFICE	$536,000
DIVISION TOTAL	$2,163,000
SOUTHWESTERN DIVISION	
ALBUQUERQUE DISTRICT	$111,000
FORT WORTH DISTRICT	$269,000
GALVESTON DISTRICT	$256,000
LITTLE ROCK DISTRICT	$342,000
TULSA DISTRICT	$492,000
DIVISION OFFICE	$191,000
DIVISION TOTAL	$1,662,000
LABORATORIES	
COLD REGIONS RESEARCH ENGINEERING LABORATORY	$101,000
CONSTRUCTION ENGINEERING RESEARCH CENTER	$101,000
WATERWAYS EXPERIMENT STATION (Includes Central Regional Processing Center operations.)	$1,043,000
TOTAL	$1,245,000
HEADQUARTERS/HUMPHREYS ENG SUPP CENT/WATER RES SUPP CENTER	$2,973,000
GRAND TOTAL	$19,217,000

2115

18 MAR 1996

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

Summary of Budget Request for Inland Waterway Trust Fund Projects

Project Name	Construction, General Appropriation $	Inland Waterways Trust Fund $	Total $
Construction			
GIWW, Sargent Beach, TX	9,150,000	9,150,000	18,300,000
Grays Landing, PA	50,000	50,000	100,000
Locks & Dams 2, 3 & 4, Monoghela River, PA	8,550,000	8,550,000	17,100,000
McAlpine Locks & Dams, IN & KY	1,383,000	6,118,000	7,501,000
Montgomery Point Lock and Dam, AR	4,333,500	1,552,500	5,886,000
Olmsted Locks and Dam, IL & KY	35,177,000	35,175,000	70,352,000
Robert C. Byrd Locks and Dam, WV & OH	6,079,000	6,079,000	12,158,000
(Locks)	3,032,000	3,032,000	6,064,000
(Dam Rehabilitation)	3,047,000	3,047,000	6,094,000
Winfield Locks and Dam, WV	15,450,000	15,450,000	30,900,000
Total - Construction	80,172,500	82,124,500	162,297,000

2116

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

Summary of Budget Request for Inland Waterway Trust Fund Projects

Project Name	Construction, General Appropriation $	Inland Waterways Trust Fund $	Total $
Rehabilitation			
Lock and Dam 14, Mississippi River, IA (Rehab)	1,400,000	1,400,000	2,800,000
Lock and Dam 24, Mississippi River, IL & MO (Rehab)	1,500,000	1,500,000	3,000,000
Lock and Dam 25, Mississippi River, IL & MO (Rehab)	1,500,000	1,500,000	3,000,000
Total - Rehabilitation	4,400,000	4,400,000	8,800,000
Gross Total - Construction and Rehabilitation	84,572,500	86,524,500	171,097,000
Reduction for Anticipated Savings and Slippage	8,572,500	524,500	9,097,000
Net Total	76,000,000	86,000,000	162,000,000

2117

rev 27 MAR 97

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1997

SUMMARY OF ALL APPROPRIATIONS

APPROPRIATION TITLE	FY 1996 Appropriation 1/	FY 1997 Request	Increase (Decrease)
General Investigations	$ 121,767,000	$ 142,500,000	$ 20,733,000
Construction, General	782,573,000 2/	914,000,000	131,427,000
Operation and Maintenance, General	1,675,197,000 3/	1,663,000,000	(12,197,000)
Flood Control, Mississippi River and Tributaries	302,885,000 4/	292,500,000	(10,385,000)
Regulatory Program	101,000,000	112,000,000	11,000,000
Flood Control and Coastal Emergencies	65,500,000 5/	15,000,000	(50,500,000)
General Expenses	151,500,000	153,000,000	1,500,000
Oil Spill Research	850,000	850,000	0
Revolving Fund	0	0	0
Permanent Appropriations (Estimated)	11,296,000	13,000,000	1,704,000
Total	$ 3,212,568,000	$ 3,305,850,000	$ 93,282,000

1/ Energy and Water Development Appropriations Act, 1996, P.L. 104-46 (109 Stat. 402)
2/ Reflects transfer of $22 million to Flood Control and Coastal Emergencies
3/ Reflects transfer of $28.5 million to Flood Control and Coastal Emergencies
4/ Reflects transfer of $5 million to Flood Control and Coastal Emergencies
5/ Reflects transfer of $55.5 million from CG, O&M, and MR&T accounts

INDEX

CORPS OF ENGINEERS

Page

LOWER MISSISSIPPI VALLEY DIVISION—Status Report 1–40
- Area of Responsibility 2
- Channel Improvement 29
- Coastal Wetlands Planning, Protection, and Restoration Act 39
- Construction 27
- Construction, General Program 13
- Fiscal Year 1995 Program Performance 3
- Fiscal Year 1996 Program Performance 3
- Fiscal Year 1997 Program Summary 4
- Flood Control Projects 22
- Flood Recovery 39
- General Investigations 23
- General Investigations 5
- Justification of Estimate for Civil Functions Activities—Lower Mississippi Valley Division 42–215
  - Construction 68–201
  - Operation and Maintenance, General 202–215
  - Preconstruction, Engineering, and Design 63–67
  - Summary 45
  - Surveys 46–63
- Justification of Estimates for Civil Functions Activities—Mississippi River Commission 216–369
  - Construction 224–362
  - General Investigations 216–223
  - Maintenance 363–370
- Lower Mississippi Valley Division Program 4
- Maintenance 38
- Mississippi River and Tributaries Program 23
- Multiple-Purpose Projects 23
- Navigation Projects 22
- Operation and Maintenance, General 22
- Preconstruction, Engineering, and Design 26
- Preconstruction, Engineering, and Design 10
- Protection of Navigation 23
- Surveys 5, 24

MISSOURI RIVER DIVISION—Status Report on Civil Works Activities 371–380
- Conclusion 380
- Construction, General 375
  - Highlights of FY 95 Program 375
  - Highlights of FY 96 Program 375

23-577 O - 96 - 68

MISSOURI RIVER DIVISION—Status Report on Civil Works Activities—Continued
Construction, General—Continued — Page
Navigation 376
Flood Control 376
Division Area 371
Flood Damage Prevention Studies 372–373
FY 97 Budget Request 371–380
General Investigations 371
Highlights of the FY 95 Program 371
Highlights of the FY 96 Program 371
Justification of Estimates for Civil Functions Activities, Missouri River Division 382–460
Construction 400–444
Operation and Maintenance 445–460
Preconstruction Engineering and Design 397–399
Surveys 382–397
Operation and Maintenance, General 378
Emergency Responses Since FY 96 Testimony 380
Highlights of FY 95 Program 378
Highlights of FY 96 Program 379
Preconstruction Engineering and Design 374–375
Project Review Studies 373–374
NEW ENGLAND DIVISION—Status Report on Civil Works Activities 461–501
Area of Responsibility 462
Construction, General Program 465–466
Fiscal Year 1997 Program Request 464
General Investigations 464
January Storms 466–467
Justification of Estimates for Civil Functions Activities—New England Division 469–501
Construction, General 475–488
Operation and Maintenance 489–501
Preconstruction Engineering and Design 473–474
Surveys 471–472
Operation and Maintenance, General 466
Outline 462
Recent Accomplishments 463
Summary 467
NORTH ATLANTIC DIVISION—Status Report 503–510
Accomplishments 504
Construction, General 507
Budget Request for Fiscal Year 1997 507
Highlights of Fiscal Year 1995 Program 507
Highlights of Fiscal Year 1996 Program 507
Districts 504
General Investigations 505
Budget Request for Fiscal Year 1997 505
Highlights of Fiscal Year 1995 Program 505
Highlights of Fiscal Year 1996 Program 505
Geographic Settings 503
Introduction 503
Justification of Estimates for Civil Functions Activities—North Atlantic Division 512–723
Construction, General 514, 580–684

NORTH ATLANTIC DIVISION—Status Report—Continued
Justification of Estimates for Civil Functions Activities—North Atlantic Division—Continued Page
Operation and Maintenance, General 514, 685–723
Preconstruction Engineering and Design 514, 564–579
Surveys 514, 515–564
Operation and Maintenance, General 509
Budget Request for Fiscal Year 1997 510
Conclusion 510
Highlights of Fiscal Year 1995 509
Highlights of Fiscal Year 1996 510
Overall Budget Request 504
NORTH CENTRAL DIVISION—Status Report on Civil Activities 725–736
Area of Responsibility 725
Budget Summary 726–736
Construction, General 729–734
Emergency Responses Since FY 1996 Testimony 736
FY 1995 Fiscal Performance 725
FY 1997 Budget Request 725
General Investigations 726–729
Justification of Estimate for Civil Functions Activities—North Central Division 738–915
Construction, General 755–862
Operation and Maintenance, General 863–915
Preconstruction Engineering and Design 741, 753–754
Surveys 741–752
Operation and Maintenance, General 734–735
NORTH PACIFIC DIVISION—Status Report 917–925
Conclusion 925
Construction, General 919–921
Description of Division 917
General Investigations 917–918
Justification of Estimates for Civil Functions Activities—North Pacific Division 927–1046
Construction, General 929, 962–1041
Operation and Maintenance, General 929, 1042–1046
Preconstruction Engineering and Design 929, 957–961
Surveys 929–956
Operation and Maintenance, General 921–925
Overall Budget Request 917
OHIO RIVER DIVISION—Status Report on Civil Works Activities.. 1047–1065
Area of Responsibility 1047
Budget Comparison Fiscal Years 1996–1997 1047–1048
Construction, General 1055–1061
Budget Request for Fiscal Year 1997 1056
Dam Safety Assurance 1060
Flood Control 1059–1060
Highlights of Fiscal Years 1995–1996 1055–1056
Major Rehabilitation 1061
Multi Purpose Projects 1060
Navigation 1057–1058
New Starts 1056–1057
Fiscal Year 1997 Budget 1048

OHIO RIVER DIVISION—Status Report on Civil Works Activities—Continued Page
General Investigations 1049–1054
Budget Request for Fiscal Year 1997 1049
Comprehensive Studies 1053
Feasibility Studies 1049
Flood Control 1054–1055
Flood Damage Prevention Studies 1050–1051
Highlights of Fiscal Years 1995–1996 1049
Navigation 1053–1054
Navigation Studies 1049–1050
Preconstruction Engineering and Design 1053
Reconnaissance Studies 1049
Special Studies 1051–1053
Justification of Estimates for Civil Function Activities—Ohio River Division 1069–1201
Construction, General 1091–1174
Operation and Maintenance, General 1175–1201
Preconstruction Engineering and Design 1069, 1084–1090
Surveys 1069–1083
Operation and Maintenance, General 1061–1065
Additional Partnering Efforts 1065
Budget Request for Fiscal Year 1997 1061–1062
Environmental 1064–1065
Flood Damage Prevention 1062
Highlights of Fiscal Years 1995–1996 1061
Hydropower 1062–1063
Initiatives 1063
Partnering 1064
Recreation 1063
PACIFIC OCEAN DIVISION—Status Report 1203–1208
Area of Responsibility 1203–1204
Construction, General 1206–1207
Emergency Response 1208
Fiscal Years 1995 and 1996 Activities and Fiscal Year 1997 Budget Request 1204
General Investigations 1204–1206
Justification of Estimates for Civil Function Activities—Pacific Ocean Division 1210–1239
Construction 1211, 1220–1236
Operation and Maintenance 1237–1239
Preconstruction Engineering and Design 1211, 1218–1219
Surveys 1211–1217
Operation and Maintenance 1208
Performance 1204
Summary 1208
SOUTH ATLANTIC DIVISION—Status Report on the Civil Works Activities 1241–1249
Conclusion 1249
Construction 1244–1247
Continuing 1245–1247
Fiscal Year 1995 1244
Fiscal Year 1996 1244
Fiscal Year 1997 1244

SOUTH ATLANTIC DIVISION—Status Report on the Civil Works Activities—Continued
Construction—Continued — Page
New ... 1245
Division Area ... 1242
General Investigations ... 1242
Fiscal Year 1995 ... 1242
Fiscal Year 1996 ... 1243
Fiscal Year 1997 ... 1243
Preconstruction Engineering and Design ... 1243–1244
Surveys ... 1243
Introduction ... 1242
Justification of Estimates for Civil Functions Activities—South Atlantic Division ... 1251–1458
Construction ... 1285–1431
Operation and Maintenance ... 1432–1458
Preconstruction Engineering and Design ... 1269–1284
Surveys ... 1253–1268
Operation and Maintenance ... 1247–1248
Emergency Response ... 1248
Fiscal Year 1995 ... 1247
Fiscal Year 1996 ... 1247
Fiscal Year 1997 ... 1247
Flood Control Projects ... 1248
Multiple Purpose Projects ... 1248
Navigation Projects ... 1248
Protection of Navigation ... 1248
Overall Budget ... 1242
SOUTH PACIFIC DIVISION—Status Report of Civil Works Activities ... 1459–1462
Collocation ... 1462
Construction, General ... 1460–1462
Fiscal Year 1997 Budget ... 1460
General Investigations ... 1460
Justification of Estimates for Civil Functions Activities—South Pacific Division ... 1464–1681
Construction ... 1531–1667
Operation and Maintenance ... 1668–1681
Preconstruction Engineering and Design ... 1518–1530
Surveys ... 1464–1517
Operation and Maintenance ... 1462
Progrma Execution ... 1462
Regional Overview ... 1459–1460
SOUTHWESTERN DIVISION—Status Report on Civil Works Activities ... 1683–1693
Construction, General ... 1687–1689
Fiscal Year 1997 Continuing Construction Program ... 1688–1689
Project Completions ... 1688
Emergency Management ... 1693
Fiscal Year 1997 Program ... 1683
Fiscal Year 1995 Performance ... 1683
Flood Damages Prevented ... 1692–1693
General Investigations ... 1684–1686
Completion of Reconnaissance Studies ... 1684
Completion of Studies ... 1686
Continuation of Partnership Studies ... 1685–1686

SOUTHWESTERN DIVISION—Status Report on Civil Works
Activities—Continued
General Investigations—Continued — Page
Continuation of Full Federal Studies 1685
Feasibility Studies 1684
Fiscal Year 1997 Survey Program 1685
Initiation of Reconnaissance Studies 1684
Survey Studies 1684
Introduction 1683
Justification of Estimate for Civil Functions Activities—Southwestern Division 1695–1901
Construction, General 1698, 1734–1873
Operation and Maintenance 1698, 1874–1901
Preconstruction Engineering and Design 1698, 1717–1733
Surveys 1698–1716
Operation and Maintenance 1690–1692
Channels and Harbors 1690
Flood Control 1691
Locks and Dams 1690
Multiple Purpose Power Projects 1691
Protection of Navigation 1692
Recreation 1692
Preconstruction Engineering and Design 1686–1687
Completion of PED Projects 1686
Continuing PED Projects 1686
Fiscal Year 1997 Preconstruction Engineering and Design Program (PED) 1687
Summary 1693
REMAINING ITEMS OF THE FISCAL YEAR 1997 1903–1925
Activities Under the Construction, General Appropriation 1912–1913, 2118
Continuing Authorities 1912
Dam Safety Assurance 1913
Employees' Compensation 1913
Inland Waterways Users Board 1912–1913
Activities Under the Flood Control and Coastal Emergencies Appropriation 1921–1922, 2118
Activities Under the General Expenses Appropriation 1922–1924, 2118
Activities Under the General Investigations Appropriation 1904–1912, 2118
Collection and Study of Basic Data 1906–1908
Cooperation with Other Federal Agencies, States, and Non-Federal Interests 1905–1906
National Dredging Needs Study of Ports and Harbors 1904
Research and Development 1908–1912
Activities Under Oil Spill Research 1925, 2118
Activities Under the Operation and Maintenance, General Appropriation 1914–1920, 2118
Coastal Inlets Research Program 1914
Cultural Resources (NAGPRA/Curation) 1916–1917
Dredging Operations and Environmental Research (DOER) Program . 1914
Earthquake Hazards Reduction Program for Buildings and Lifelines . 1919
Mississippi River Basin Mainstream Model Development 1919–1920
Monitoring of Completed Coastal Navigation Projects 1915
National Dam Safety Program 1916
National Emergency Preparedness Program (NEPP) 1917 1918
Operations Technical Support (OTS) 1918–1919

REMAINING ITEMS OF THE FISCAL YEAR 1997—Continued
Activities Under the Operation and Maintenance, General
Appropriation—Continued Page
Peer Review Program 1917
Protection of Navigation 1917
Reliability Models Program for Major Rehabilitation 1920
Repair, Evaluation, Maintenance, and Rehabilitation (REMR–H) 1915
River Confluence Ice Research 1916
Activities Under the Regulatory Program Appropriation 1920–1921, 2118
Activities Under the Revolving Fund 1924–1925, 2118
Support for Others 1925
Conclusion 1925
Introduction 1904
Justification of Estimates for Civil Functions Activities—Remaining Items 1927–2118
Automation Costs 2104–2115
Construction, General 2027–2037
Aquatic Plant Control Program 2034–2035
Beach Erosion Control Projects 2030
Beneficial Uses of Dredged Material (Sec. 204, P.L. 102–580) 2036
Dam Safety Assurance Program 2032
Employees Compensation (Payments to Department of Labor) 2037
Flood Control Projects 2031
Navigation Projects 2027–2030
Project Modifications for Improvement of the Environment 2033
Flood Control and Coastal Emergencies 2071–2073
General Expenses 2074–2079
General Investigations 1927–2026
Characterization and Restoration of Wetlands Research 2024–2026
Collection and Study of Basic Data 1940–1976
Earthquake Engineering 2016–2019
Research and Development 1977–2015
Surveys 1927–1939
Zebra Mussel Control Research Program 2020–2023
Inland Waterway Trust Fund Projects 2116–2117
Oil Spill Research 2099–2101
Operation and Maintenance, General 2038–2067
Flood Control 2038, 2052–2055
National Emergency Preparedness Program (NEPP) 2038, 2059–2061
Navigation 2038–2051
Project Operations Support Program 2038, 2062–2067
Protection of Navigation 2038, 2056–2058
Regulatory Program 2068–2070
Revolving Fund—Plant Replacement and Improvement Program (PRIP) 2080–2098
Summary of all Appropriations 2118
Support for Others 2102–2103
Remaining Items Overview 1904

Projects and Studies

Abiquiu Dam Emergency Gates, NM 1822–1826
Abiquiu Dam, NM 1883
Acequias Irrigation System, NM 1826–1830
Addison, NY 564

Page

Additions and Betterments to Building 8000—Waterways Experiment Station 2083
AIWW—Replacement of Federal Highway Bridges, NC 1245, 1322–1328
AIWW (Charleston), SC 1443
AIWW (Jacksonville), FL 1433
AIWW (Savannah), GA 1438
AIWW (Wilmington), NC 1439
Alabama River below Claiborne Lock and Dam, AL 1255
Alabama-Coosa Rivers, AL 1446
Albeni Falls Dam, ID 1035
Alamo Lake, AZ 1516–1517, 1674
Alamogordo, NM 1767–1771
Alamosa, CO 1754–1758
Alaska Navigation Studies 918
Alenio Stream Flood Control, HI 1206, 1233–1236
Alexander and Pulaski Counties, IL 6, 42, 51
Altoona Lake, GA 1454
Allegheny River, PA 1178
Almond Lake, NY 706
Aloha-Rigolette Area, LA 17, 43, 139–144
Alpena Harbor, MI 866
Alpine, TX 1704
Alum Creek Lake, OH 1185
Alvin R. Bush Dam, PA 708
American River Watershed, CA 1521–1523
Anacostia River and Tributaries, MD & DC 523–524
Anacostia River Federal Facilities Impact Assessment, MD & DC 556
Analytical Laboratory Facility—Waterways Experiment Station 2082–2083
Anchorage Harbor, AK 1019
Andrews River, MA 489
Aniak, AK 940–941
Antelope Creek, Lincoln, NE 372, 382, 387
Apalachicola Bay, FL 1433
Apalachicola, Chattahoochee and Flint Rivers, AL 1446–1447
Applegate Lake, OR 1029
Appomattox River, VA 699
Aquatic Plant Control Program 2034–2035
Aquilla Lake, TX 1888
Arcadia Harbor, MI 866
Arcadia Lake, OK 1884
Arecibo River, PR 1285–1289
Arecibo River, Puerto Rico 1245
Arkansas—Red River Basins Chloride Control (Area VIII), TX 1888
Arkansas City, KS 1759–1762
Arkport Dam, NY 707
Arthur Kill Channel, Howland Hook Marine Terminal, NY & NJ 506, 570
Ashland Harbor, WI 884
Ashtabula Harbor, OH 882
Atchafalaya Basin Floodway System, LA 29–30, 44, 260–277, 368
Atchafalaya River, LA 203
Atlanta Watershed, GA 1263
Atlantic Beach Channels, NC 1439
Atlantic Coast of New York, NY 557
Atlantic Intracoastal Waterway Bridge at Great Bridge, VA 506,571–572

Page
Atlantic Intracoastal Waterway (ACC) & (DSC), VA 699
AuSable Harbor, MI 866
Automated Information Systems Supports 1973–1976
Automation Costs 2104–2115
Avon Harbor, NC 1440
Aylesworth Creek Lake, PA 708
Ball Mountain Lake, VT 497
Baltimore Harbor, MD 719
Baltimore Harbor Anchorages and Channels, MD & VA 505,517–518, 568–569
Baltimore Harbor and Channels, MD 687
Baltimore Harbor Drift Removal, MD 720
Baltimore Metropolitan Water Resources, MD 525–526
Barbers Point Harbor Modification, Oahu, HI 1212–1213
Barbers Point Harbor, HI 104–1237
Bardwell Lake, TX 1888
Barkley Dam—Lake Barkley, KY 1199
Barkley Dam and Lake Barkley, KY & TN 1060, 1163–1166
Barnegat Inlet, NJ 690
Barre Falls Dam, MA 493
Barren River Lake, KY 1182
Bartaria Bay Waterway, LA 203
Baton Rouge Harbor (Devil's Swamp), LA 364
Bay Ridge & Red Hook Channels, NY 693
Bayou Rodcau Reservoir, LA 212
Bayou Cocodrie & Tributaries, LA 368
Bayou Coden, AL 1432
Bayou La Batre, AL 1245, 1299–1304, 1432
Bayou LaFourche and Lafourche Jump Waterway, LA 203
Bayou Teche and Vermillion River, LA 209
Bayou Teche, LA 209
Bayou Tigre, Erath, LA 7, 42, 52
Bayport Ship Channel, TX 1874
Beach City Lake Muskingum River Lakes, OH (Dam Safety Assurance) 1171–1174
Beach City Lake, OH 1060
Beals Creek, Big Spring, TX 1792–1796
Bear Creek Lake, CO 447
Beaufort Harbor, NC 1440
Beaver Lake, AR 1897
Beech Fork Lake, WV 1192
Belhaven Harbor, NC 1440
Belton Lake, TX 1888
Beltzville Lake, PA 708
Benbrook Lake, TX 1888
Beneficial Uses of Dredged Material (Sec. 204, P.L. 102–580) 2036
Berlin Lake, OH 1186
Bethel Bank Stabilization, AK 976–979
Bethel Harbor, AK 1019
Bethel, AK 919
Big Bend Dam—Lake Sharpe, SD 459
Big Sandy Harbor, KY 1175
Big Sioux River at Sioux Falls, SD 382, 378, 400–404
Big Stone Lake—Whetstone River, MN & SD 898
Biloxi Harbor, MS 1439

Page
Birch Hill Dam, MA 494
Birch Lake, OK 1884
Black Bayou Diversion, LA 7, 42, 53
Black Butte Lake, CA 1675
Black River, MI 866
Black Rock Channel & Tonawanda Harbor, NY 894
Black Rock Lake, CT 492
Black Warrior and Tombigee Rivers, AL 1446
Black Warrior and Tombigee Rivers, Vicinity of Jackson, AL 1305–1308
Blackstone River Watershed Restoration, MA & RI 464, 469
Blackwater Dam, NH 496
Blakely Mt. Dam, Lake Ouachita, AR 214
Blue Marsh Lake, PA 709
Blue Mountain Lake, AR 1879
Blue River Basin, Kansas City, MO 375, 382, 398–399
Blue River Channel, Kansas City, MO 377, 382, 415–418
Blue River Lake, OR 1029
Bluestone Lake, WV 1192
Bogue Inlet and Channels, NC 1440
Bonnet Carre, LA 363
Bonneville Lock and Dam, OR 1036
Bonneville Powerhouse (Phase II—Main Unit), OR & WA 919, 1015–1018
Bonneville Powerhouse (Phase I), OR & WA 1011–1014
Sonneville Second Powerhouse, OR & WA 919, 991–995
Boston Harbor, MA 464, 469, 473–474
Bowman-Haley Lake, ND 454
Brays Bayou, Houston, TX 1724–1725
Brazos Island Harbor, TX 1874
Brigantine Inlet to Great Egg Harbor Inlet, NJ 542–543
Broad Creek, VA 700
Broken Bow Lake, OK 1898
Bronx River, NY 694
Brookville Lake, IN 1181
Brunswick County Beaches, NC 1284
Brunswick Harbor, GA 1260, 1438
Buchanan Dam—H.V. Eastman Lake, CA 1675
Buckhorn Lake, KY 1183
Buffalo Bayou and Tributaries, TX 1889
Buffalo Harbor, NY 881
Buffumville Lake, MA 494
Buford Dam—Lake Sidney Lanier, GA 1454
Bull Shoals Lake, AR 1897
Burns Harbor, IN 734
Burns Waterway Harbor, IN 849–852, 865
Burns Waterway Small Boat Harbor, IN 865
Burnsville Lake, WV 1192
B. Everett Jordan Dam and Lake, NC 1449
Caddo Lake, LA 212
Caesar Creek Lake, OH 1186
Cagles Mill Lake, IN 1181
Calcasieu River and Pass, LA 203
Calumet Harbor & River, IL & IN 864
Canaveral Harbor, FL 1434
Candy Lake, OK 1884

Page
Canton Lake, OK 1885
Canyon Lake, TX 1889
Cape Cod Canal, MA 489
Cape Fear—Northeast (Cape Fear) River, NC 1276
Cape Fear River above Wilmington, NC 1448
Cape Girardeau-Jackson, MO 19, 43, 179–183
Cape May Inlet to Lower Township, NJ 603–608
Carlyle Lake, IL 211
Carolina Beach and Vicinity, NC 1246, 1354–1361
Caroline Beach Inlet, NC 1440
Carr Fork Lake, KY 1183
Carters Lake, GA 1454
Caruthersville Harbor, MO 206
Caseville Harbor, MI 867
Cave Run Lake, KY 1183
Cecil M. Harden Lake, IN 1181
Cedar Bayou, TX 1874
Center Hill Lake, TN 1200
Central and Southern Florida, FL 1246, 1368–1377, 1451
Central Basin Goundwater Project, CA 1496–1497
Channel from Back Sound to Lookout Bight, NC 1440
Channel Improvement, AR, IL, KY, LA, MS, MO, & TN 44, 243–259
Channel Islands Harbor, CA 1668
Channel to Newport News, VA 700
Channel to Port Mansfield, TX 1874
Channel to Victoria, TX 1734–1738
Channels and Harbors 2029
Channels in Lake St. Clair, MI 867
Characterization and Restoration of Wetlands Research 2024–2026
Charles River Natural Valley Storage Area, MA 494
Charleston Harbor, SC 1279, 1443
Charlevoix Harbor, MI 867
Charlotte Harbor, FL 1434
Chaska, MN 732, 812–816
Chatfield Lake, CO 447
Cheat River Basin, North Branch, Lick Run Environmental
Restoration, WV 1052, 1081
Cheatham Lock and Dam, TN 1200
Cheboygan Harbor, MI 868
Cheesequake Creek, NJ 690
Chehalis River, WA 919
Chena River Lakes, AK 1029
Chena River Watershed, AK 943–944
Cherry Creek Lake, CO 448
Chesapeake and Delaware Canal, Baltimore Harbor Connecting Channels,
DE & MD 506, 515–516, 565–566
Chesapeake Bay Oyster Recovery, MD 677–680
Chesapeake Bay Shoreline, Poquoson, VA 555
Chesapeake Bay Time Variable Model, MD, VA, PA, & DC 557
Chesapeake & Delaware Canal—St. George's Bridge Replacement, DE 685
Chesterfield, MO 9, 42, 59
Chetco River, OR 1021
Chicago Harbor, IL 863
Chicago River, IL 863

Page
Chicago Shoreline, IL 730, 767–770
Chief Joseph Dam, WA 1038
Chief Joseph Pool Raise, WA 947–948
Chignik Harbor, AK 957–958
Chincoteague Bay Channel, VA 700
Chincoteague Harbor of Refuge Inspections, VA 701
Chincoteague Inlet, VA 701
Claiborne County Port, MS 206
Clarence Cannon and Reservoir, MO 214
Clarence J. Brown Dam and Reservoir, OH 1186
Clear Creek, TX 1797–1801
Clearwater Lake, MO 1882
Cleveland Harbor, OH 735, 882
Clifton, AZ 1559–1564
Clinton Lake, KS 448
Clinton River, MI 868
Clock Tower Building Additions and Betterments—Rock Island District 2083
Coastal Field Data Collection 1961–1965
Coastal Inlets Research Program 2039–2040
Coastal Navigation and Storm Damage Reduction 1988–1992
Cochiti Lake, NM 1883
Cold Brook Lake, SD 454
Cold Spring Inlet, NJ 691
Colebrook River Lake, CT 492
Colonias Along U.S.-Mexico Border, TX 1710
Columbia River Dredging, OR & WA 922
Columbia and Lower Williamette Rivers below Vancouver, WA and Portland, OR 1021
Columbia River at Baker Bay, WA 1024
Columbia River at the Mouth 1021
Columbia River between Chinook and Sand Island, WA 1024
Columbia River between Vancouver, WA and the Dalles, OR 1021
Columbia River Channel Deepening, OR & WA 918
Columbia River Fish Mitigation WA, OR, & ID 1000–1006
Columbia River Fish Mitigation ID, OR, & WA 920
Columbia River Navigation Channel Deepening Study, OR 937–939
Columbia River Salmon 923–924
Columbia River System Operation Review 922
Columbia River Treaty Fishing Access Sites, OR & WA 920, 996–999
Columbia River Water Management 922
Cormite River, LA 11, 42, 64
Communications Upgrade and Replacement Program 2095
Computer-Aided Design and Drafting Equipment (CADD) 2096
Conant Brook Lake, MA 494
Conchas Lake, NM 1883
Conemaugh River Basin, Nanty Glo Environmental Restoration, PA 1052–1079
Conemaugh River Lake, PA 1189
Cook Inlet, AK 958–959
Cooper Lake and Channels, TX 1889
Cooper River, Charleston Harbor, SC 1443
Cooperation with Other Federal Agencies, States, and Non-Federal Interests 1936–1939
Coos Bay, OR 919, 971–975, 1022
Copan Lake, OK 1885

Page
Coquille River, OR 1022
Coralville Lake, IA 748, 896
Coralville Lake, IA (Sec. 216) 728
Cordell Hull Dam and Reservoir, TN 1200
Corps of Engineers Automation Plan (CEAP) 2097
Corpus Christi Ship Channel, TX 1700–1701, 1875
Cottage Grove Lake, OR 1030
Cottonwood Springs Lake, SD 454
Cougar Lake, OR 1036
Council Grove Lake, KS 1881
Cowanesque Lake, PA 709
Coyote and Berryessa Creeks, CA 1571–1578
Coyote Valley Dam—Lake Mendocino, CA 1675
Crane Barge 763 Replacement—Rock Island District 2086
Crane Barge No. 1 Replacement—St. Louis District 2088
Crescent City Harbor, CA 1518–1519
Cresent Bay Harbor, Sitka, AK 1019
Crisfield Harbor, MD 688
Crooked Creek Lake, PA 1189
Crookston, MN 726, 729, 742, 753–754
Crown Bay Channel, VI 1280
Cultural Resources (NAGPRA/Curation) 2053–2054
Cumberland, MD 714, 715
Curwensville Lake, PA 709
Cuttyhunk Harbor, MA 490
Cypress Creek, Houston, TX 1726–1727
Cypress Valley Watershed, TX 1711–1712
Dade County, FL 1329–1333
Dale Hollow Lake, TN 1200
Dallas Floodway Extension, Trinity River, TX 1728–1729
Dam Safety Assurance Program 2032
Dardanelle Lock and Dam, AR 1897
Dardanelle Lock and Dam, (Powerhouse) AR (Major Rehab) 1870–1874
Dare County Beaches, NC 1265
Deer Creek Lake, OH 1186
DeGray Lake, AR 214
Delaware Bay Coastline, DE and NJ 538–539
Delaware Coast from Cape Henlopen to Fenwick Island, DE 540–541
Delaware Coast Protection, DE 598–602
Delaware Lake, OH 1186
Delaware River at Camden, NJ 691
Delaware River Main Channel Deepening DE, NJ, and PA 567
Delaware River, Philadelphia to the Sea, PA, NJ, and DE 691
Delaware River, Philadelphia to Trenton, NJ 691
Denison Dam—Lake Texoma, TX 1900
Depoe Bay, OR 1022
DeQueen Lake, AR 1879
Des Plaines River Basin, IL 729
Des Plaines River, IL 751–752
Detroit Lake, OR 1036
Detroit River, MI 868
Devils Lake, ND 727, 736, 744
Dewey Lake, KY 1060, 1183
Dewey Lake, KY (Dam Safety Assurance) 1167–1170

Page
Dierks Lake, AR 1879
Dillingham Harbor, AK 1019
Dillon Lake, OH 1187
Disaster Preparedness and Emergency Responses 2071–2073
Document Imaging—Corpswide 2091
Dog and Fowl Rivers, AL 1432
Dog River, AL 1256
Dorena Lake, OR 1030
Double Bayou, TX 1875
Douglas Harbor, AK 1020
Dredging Data and Lock Performance Monitoring System 2056–2058
Dredging Operations and Environmental Research (DOER) Program 2041–2042
Drum Inlet, NC 1441
Dry Creek (Warm Springs) Lake and Channel, CA 1675
Dry Pass, AK 1020
Duluth-Superior Harbor, MN and WI 880
Dunkirk Harbor, NY 881
Dutch Harbor, AK 930
Duwamish/Green River, WA 948–950
Duxbury Harbor, MA 490
Dworshalk Dam and Reservoir, ID 1035
Earthquake Engineering 2016–2019
Earthquake Hazards Reduction Program for Buildings and Lifelines 2064
East Baton Rouge Parish, LA 11, 42, 65
East Branch Clarion River, PA 1189
East Brimfield Lake, MA 494
East Fork, Tombigbee River, MS 1451
East Lynn Lake, WV 1193
East Pass Channel, FL 1434
East Rockaway Inlet to Rockaway Inlet and Jamaica Bay, NY 621–625
East Rockaway Inlet, NY 694
East Sidney Lake, NY 707
East St. Louis, IL 16, 43, 134–138
Eastchester Creek, NY 694
Eastern Arkansas Region Comprehensive Study, AR 26, 44, 222
Eau Galle River Lake, WI 899
Ediz Hook, WA 1024
Edward MacDowell Lake, NH 496
Eight Mile Creek, AR 31, 44, 278–282
El Dorado Lake, KS 1881
El Paso, TX 1802–1806
Elk City Lake, KS 1881
Elk Creek Lake, OR 920, 980–987
Elk River Harbor, WV 1176
Elkins, WV 1196
Elvis Stahr Harbor, KY 203
Employees Compensation (Payments to the Department of Labor) 2037
Environmental Quality 2001–2004
Erie, PA 884
Escambia-Conecuh Rivers, FL 1434
Estelline Springs Experimental Project, TX 1889
Eufaula Lake, OK 1898
Everett Harbor and Snohomish River, WA 1024
Fabius River Drainage District, MO 749

Page
Fabius River, MO 728
Fairport Harbor, OH 883
Fall Creek Lake, OR 1030
Fall River Lake, KS 1881
Falls Lake, NC 1449
Farm Creek, IL 896
Farmington Dam, CA 1675
Fern Ridge Lake, OR 1030
Fernandina Harbor, FL 1434
Ferrell's Bridge Dam—Lake O' the Pines, TX 1889
Festus and Crystal City, MO 6, 42, 60
Fire Island Inlet to Montauk Point, NY 508, 626–630
Fire Island Inlet, NY 694
Fire Island to Jones Inlet, NY 694
Fishing Bay, MD 688
Fishtrap Lake, KY 1184
Flint River Basin, GA 1254
Flood Control and Navigation 1993–2000
Flood Damage Data Program—New 1972
Flood Plain Management Services 1940–1941
Flushing Bay and Creek, NY 695
Fort Gibson Lake, OK 1898
Fort Peck Dam and Lake, MO 458
Fort Pierce Harbor, FL 1434
Fort Randall Dam—Lake Francis Case, SD 460
Fort Supply Lake, OK 1885
Fort Wayne Metropolitan Area, IN 731
Fort Wayne, IN 791–795
Foster Joseph Sayers Dam, PA 710
Four River Basins, FL 1378–1383
Fox River, WI 750, 894
Fox River, WI (Sec. 216) 728
Francis E. Walter Dam, PA 710
Frankfort Harbor, MI 869
Franklin Falls Dam, NH 496
Freeport Harbor, TX 1875
Freeport, IL 727, 746
Freshwater Bayou, LA 204
Friday Harbor, WA 1024
Fry Creeks, Bixby, OK 1783–1786
Fuel Oil Barge 4315 Replacement—Vicksburg District 2084–2085
Galisteo Dam, NM 1883
Galisteo Dam, NM (Dam Safety) 1842–1845
Galveston Harbor and Channel, TX 1875
Garrison Dam and Power Plant, ND 382, 411–414
Garrison Dam, Lake Sakakawea, ND 459
Gate Lifter Crane (Derrickboat)—Louisville District 2087–2089
Gathright Dam and Lake Moomaw, VA 712
Gavins Point Dam, Lewis and Clark Lake, NE & SD 459
General Edgar Jadwin Dam and Reservoir, PA 710
Georgetown Harbor, SC 1262, 1444
Gila River, North Scottsdale, AZ 1473–1474
Gila River, Santa Cruz River Basin, AZ 1475
Gila River, Tortolita Drainage Area, AZ 1476–1477

Page
Gillham Lake, AR 1879
GIWW—Channel to Victoria, TX 1875
GIWW—Chocolate Bayou, TX 1875
GIWW—Sargent Beach, TX 1739–1742, 2116
Global Positioning System—Corpswide 2093
Graham, TX (Brazos River Basin) 1717–1718
Grand Forks, ND 726, 743
Grand Haven Harbor, MI 869
Grand Marais Harbor, MN 879
Grand Prairie Area General Reevaluation 26
Grand (Neosho) River, KS 1708
Granger Dam and Lake, TX 1890
Grapevine Lake, TX 1890
Grays Harbor and Chehalis River, WA 1025
Grays Landing Lock and Dam (Lock and Dam 7) Monongahela River, PA 1115–1119
Grays Landing Lock and Dam, Monongahela River, PA 1058
Grays Landing, PA 2116
Grayson Lake, KY 1184
Great Egg Harbor Inlet and Peck Beack, NJ 609–614
Great Salt Plains Lake, OK 1885
Green and Barren Rivers Navigation Disposition Study, KY 1052, 1078
Green and Barren Rivers, KY 1177
Green Bay Harbor, WI 885, 890
Green Harbor, MA 490
Green Peter—Foster Lakes, OR 1036
Green River Lake, KY 1184
Greens Bayou, Houston, TX 1730–1731
Greenville Harbor, MS 364
Greers Ferry Lake, AR 1897
Grundy, VA 1059
Guadalupe River, CA 1579–1585
Gulf Intercoastal Waterway—Arkansas National Wildlife Refuge, TX 1719
Gulf Intracoastal Waterway—High Island to Brazos River, TX 1715–1716
Gulf Intracoastal Waterway (Mobile), AL 1432
Gulf Intracoastal Waterway, LA 204
Gulf Intracoastal Waterway, TX 1875
Gulfport Habor, MS 1439
Hampton Creek, VA 701
Hampton Roads Drift Removal, VA 720
Hancock Brook Lake, CT 492
Harbor Beach, MI 869
Harlan County Lake, NE 453
Harrisville Harbor, MI 870
Harry S. Truman Dam and Reservoir, MO 458
Hartwell Lake Powerhouse, GA & SC 1247, 1424–1427
Hartwell Lake, GA 1454
Hazardous Waste Research Center 2081–2082
Helena and Vicinity, AR 27, 44, 226–230
Helena Harbor, AR 202, 364
Heyburn Lake, OK 1885
Hidden Dam—Hensley Lake, CA 1676
Hills Creek Lake, OR 1036
Hillsboro Inlet, FL 1271

Page
Hillsdale Lake, KS 449
Hodges Village Dam, MA 466, 469, 475–478, 495
Holes Creek, West Carrollton, OH 1059, 1135–1139
Holland Harbor, MI 870
Homer Harbor, AK 1020
Homme Dam, South Branch Park River, ND 840–842
Homme Lake, ND 733, 899
Honga River & Tar Bay, MD 688
Hop Brook Lake, CT 492
Hopkinton-Everett Lakes, NH 496
Hords Creek Lake, TX 1890
Horn Harbor, VA 701
Houston-Galveston Navigation Channels, TX 1720–1721
Houston Ship Channel, TX 1876
Howard A. Hanson Reservoir, WA 1031
Howard Hanson Dam Safety, WA 919
Howard Hanson Dam, WA 956–957, 987–990
Hudson River Channel, NY 695
Hudson River Habitat Restoration, NY 521–522
Hudson River, NY 695
Hugo Lake, OK 1885
Hulah Lake, OK 1885
Humboldt Harbor and Bay, CA 1668
Huntington Lake, IN 1181
Huron Harbor, OH 883
Hyannis Harbor, MA 490
Hydrologic Studies 1951–1956
Iao Stream Flood Control, Maui, HI 1229–1232
Iao Stream, Maui, HI 1207
Ice Harbor Lock and Dam, WA 1038
Ice Harbor Navigation Lock, WA 921
Illinois Waterway (LMVD), AR 208
Illinois Waterway, IL 892
Imperial County Watershed, CA 1497–1498
Indian River Inlet and Bay, DE 685
Indiana Harbor, IN 735, 865
Indianapolis, White River (North), IN 1055, 1087–1088
Information Systems Modernization Program (ISMP)—Corpswide 2093–2095
Initial Outfitting—USACE Finance Center 2097–2098
Inland Route, MI 870
Inland Waterways Users Board 2030
International Waters Studies 1947–1950
Intercoastal Waterway Locks, LA 5, 42, 47
Intercoastal Waterway, Palm Beach County, FL 1257–1272
Isabella Lake, CA 1676
IWW, between Rehoboth Bay and Delaware Bay, DE 686
IWW, Caloosahatchee-Anclote Rivers, FL 1435
IWW, from Delaware River to Chesapeake Bay, DE & MD 685
IWW, Jacksonville to Miami FL 1435
Jack D. Maltester Channel (San Leandro Marina), CA 1668
Jackson Hole Levees, WY 1033
Jackson Hole Restoration, WY 918, 952–953
Jackson Metropolitan Area, LA 67
Jackson Metropolitan Area, MS 12, 42

Page
Jacksonville Harbor, FL 1258, 1435
Jamaica Bay, Marine Park and Plumb Beach, NY 552–553
Jamacia Bay, NY 695
James River, VA 702
James R. Olin Flood Control Project, VA 509, 661–666
Jefferson Parish, LA 7, 42, 54
Jemez Canyon Dam, NM 1883
Jennings Randolph Lake, MD & WV 562–563, 576–577, 706
Jim Woodruff Lock and Dam, FL 1454
Jim Woodruff Powerhouse, FL 1247, 1420–1423
Joe Pool Lake, TX 1890
John Day Lock and Dam, OR 1037
John Day Powerhouse, OR & WA 921, 1042–1046
John H. Kerr Dam and Reservoir, NC 1455–1456
John H. Kerr Lake, VA 1268
John Martin Reservoir, CO 1880
John Redmond Dam and Reservoir, KS 1881
John W. Flannagan Dam and Reservoir, PA 1191
Johns Pass, FL 1435
Johnstown, PA 1196
Johnstown, PA (Major Rehabilitation) 1145–1148
Johnstown, PA, Local Protection Project 1061
Jones Inlet, NY 696
Juniata River Basin, PA 532
J. Percy Priest Dam and Reservoir, TN 1200
J. Strom Thurmond Lake, GA 1455
Kake Harbor, AK 921, 962–966
Kanawha River Navigation, WV 1050, 1072
Kanawha River, WV 1179
Kanopolis Lake, KS 373, 382, 390–391, 449
Kaskaskia River, AR 208
Kaumalapau Harbor, Lanai, HI 1206
Kaw Lake, OK 1886
Kawaihae Small Boat Harbor, HI 1206, 1220–1223
Kawainui Marsh, Oahu, HI 1207
Kaweah River, CA 1523–1524
Kenosha Harbor, WI 885
Kentucky Lock, KY 1054, 1084
Kentucky River, KY 1177
Kewaunee Harbor, WI 885
Keweenaw Waterway, MI 870
Keyport Harbor, NJ 692
Keystone Lake, OK 1899
Kikiaola Harbor, Kauai, HI 1205
Kikiaola Small Boat Harbor, Kauai, HI 1218–1219
Kill Van Kull & Newark Bay, NY & NJ 580–584
Kinzua Dam and Allegheny Reservoir, PA 1190
Kissimmee River, FL 1246, 1415–1419
Knightville Dam, MA 495
Kodiak Harbor, AK 919
Kuskokwim River, AK 931
La Farge Lake, WI 900
La Grange Bayou, FL 1435
Lac LaBelle Harbor, MI 871

Page
Lac qui Parle Lake, MN 897
Lackawanna River, Olyphant, PA 646–651
Lackawanna River, Scranton, PA 651–655
Lafayette Parish, LA 8, 42, 55
Lake Ashtabula—Baldhill Dam, ND 733–734, 843–848, 858–862, 89
Lake Crockett (Keystone Harbor), WA 1025
Lake Kemp, TX 1890
Lake Michigan Diversion, IL 864
Lake Montauk Harbor, NY 696
Lake Pontchartrain and Vicinity, LA 17, 43, 145–153
Lake Providence, LA 204
Lake Shelbyville, IL 211
Lake Traverse, MN & SD 898
Lake Washington Ship Canal, WA 955–956, 1028
LaPointe Harbor, WI 885
LaRose to Golden Meadow, LA 17, 43, 154–158
Las Cruces, El Paso and Vicinity, NM 1723
Laurel River Lake, KY 1199
Lavon Lake, TX 1890
Leland Harbor, MI 871
Levisa and Tug Forks of the Big Sandy River and the Upper Cumberland River, WV, V, & KY 1059, 1149–1162
Lewisville Dam, TX 1890
Lexington Harbor, MI 871
Lexington, Fayette County, KY 1050, 1073
Libby Dam, Lake Koocanusa, MT 1035
Licking River, KY 1175
Lido Key, Sarasota County, FL 1264
Little Blue River Lakes, MO 451
Little Calumet River, IN 732, 796–801
Little Goose Lock and Dam, WA 1038
Little Lake Harbor, MI 872
Little River Inlet, SC 1444
Littleville Lake, MA 495
Local Protection 2031
Lock 14, IA 734
Lock and Dam 14, Mississippi River, IA 853–857, 2117
Lock and Dam 24, Mississippi River, IL & MO 43, 194–197, 2117
Lock and Dam 25, Mississippi River, IL & MO 43, 198–201, 2117
Locks and Dams 2, 3, and 4, Monongahela River, PA 1058, 1120–1124, 2116
Lockwoods Folly River, NC 1441
London Locks and Dam, WV 1054–1085
Long Beach Island, NY 573–574
Long Boat Pass, FL 1435
Long Branch Lake, MO 452
Lookout Point Lake, OR 1037
Lorain Harbor, OH 883
Los Angeles County Drainage Area Water Conservation and Supply (Hansen and Lopez Dam), CA 1498–1499
Los Angeles County Drainage Area Water Conservation and Supply, (Santa Fe and Whittier Narrows Dams), CA 1499
Los Angeles County Drainage Area, CA 1585–1589, 1676
Los Angeles Harbor, CA 1531–1536
Los Angeles-Long Beach Harbor Model, CA 1668

Page
Los Angeles-Long Beach Harbors, CA 1669
Lost Creek Lake, OR 1037
Loves Park, IL 730, 776–780
Lower Arkansas River (North Bank), AR 365
Lower Arkansas River (South Bank), AR. 365
Lower Cape May Meadows—Cape May Point, NJ 544–545
Lower Granite Lock and Dam, WA 1038
Lower Las Vegas Wash Wetlands, NV 1513–1514
Lower Monumental Lock and Dam, WA 1039
Lower Platte River and Tributaries, NE 373, 382, 388–389
Lower Red River, LA 368
Lower River Des Peres, MO 10, 42, 61
Lower Sacramento Area Levee Reconstruction, CA 1590–1595
Lower Savannah River, GA 1275
Lower Snake River Fish and Wildlife Compensation, WA,
OR, & ID 920, 1007–1011
Lower Truckee River Pyramid Lake Pauite Tribe, NV 1514–1515
Lower Truckee River Washoe County, NV 1515–1516
Loyalhanna Lake, PA 1190
Lucky Peak Lake, ID 1029
Ludington Harbor, MI 872
Lynnhaven Inlet Inspection, VA 702
Maalaea Harbor, Maui, HI 1224–1228
Maalaea Small Boat Harbor, Maui, HI 1207
Mackinaw City Harbor, MI 872
Madison Parish Port, LA 204
Mahoning Creek Lake, PA 1190
Manasquan River, NJ 692
Manatee Harbor, FL 1245, 1313–1317
Manistee Harbor, MI 872–873
Manitowoc Harbor, WI 886
Mansfield Hollow Lake, CT 493
Manteo (Shallowbag) Bay, NC 1441
Marina del Rey and Ballona Creek, CA 1470–1471
Marion Lake, KS 1882
Marmet Locks and Dam, WV 1054, 1086
Marshall, MN 732, 817–821
Martin County, FL 1334–1339
Martins Fork Lake, KY 1184
Martis Creek Lake, NV 1678
Marysville/Yuba City Levee Reconstruction, CA 1596–1600
Masonboro Inlet and Connecting Channels, NC 1441
Massillon, OH 1195
Matagorda Ship Channel, TX 1876
Matawan Creek, NJ 692
Materials/Structural Engineering 1982–1987
Matewan, WV 1059
Mattituck Harbor, NY 696
Maui Second Harbor, Maui, HI 1205, 1214–1215
May Branch, Fort Smith, AR 1702–1703
McAlpine Locks and Dams, IN & KY 1057, 1111–1114, 2116
McClellan-Kerr Arkansas River Navigation System, AR & OK 1878
McClellan-Kerr Arkansas River Navigation System, Locks and Dams,
AR & OK 1743–1748

Page
McCook and Thornton Reservoirs, IL 731, 781–786
McGrath Creek, Wichita Falls, TX 1807–1810
McKinney Bayou, AR 6, 49–50
McKinney Bayou, AR & TX 42
McNary Lock and Dam, OR 1037
Melvern Lake, KS 449
Melvin Price Lock and Dam, IL & MO 15, 43, 98–103
Memphis Harbor (McKellar Lake), TN 364
Menominee Harbor, MI & WI 879
Meramec River Basin, Valley Park Levee, MO 20, 43, 184–187
Merced County Streams Group, CA 1676
Merced County Streams, CA 1601–1607
Metro Center Levee, Davidson County, TN 1051, 1077
Metro Region of Cincinnati, Duck Creek, OH 1096–1100
Metropolitan Cincinnati, Northern Kentucky, KY 1051, 1074
Metropolitan Louisville, Beargrass Creek, KY 1051, 1055, 1075, 1089–1090
Metropolitan Louisville, Pond Creek, KY 1056, 1091–1095
Metropolitan Louisville, Southwest, KY 1051, 1076
Metropolitan Region of Cincinnati, Duck Creek, OH 1057
Miami Harbor, Channel, FL 1318–1321
Miami Harbor, FL 1245, 1436
Michael J. Kirwan Dam and Reservoir, OH 1187
Michigan City Harbor, IN 865
Middle Fork Willamette Fishery Restoration, OR 944–945
Middle Rio Grande Flood Protection, Bernalillo to Belen, NM 1772–1777
Middlesboro, KY 1195
Mid-Valley Area Levee Reconstruction, CA 1608–1614
Milford Lake, KS 450
Mill Creek, Virgil B. Bennington Lake, WA 1031
Millers Ferry Lock and Dam—William "Bill" Dannelly Reservoir, AL 1453
Millwood Lake, AR 1880
Milton, PA 533
Milwaukee Harbor, WI 886
Mingo Creek, Tulsa, OK 1787–1791
Minnesota River, MN 879
Mississinewa Lake, IN 1182
Mississippi and Louisiana Estuarine Areas, MS and LA 34, 44
Mississippi Delta Region Caernarvon, LA 363
Mississippi Delta Region, LA 33, 44, 308–315
Mississippi Delta, MS 24, 44, 218
Mississippi River—Gulf Outlet, LA 68–79, 205
Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, & TN 224–225
Mississippi River Basin Mainstem Model Development 2065–2066
Mississippi River between Missouri River and Minneapolis, MN, L&D, 3, 5A, 6, 7, 8, and 9, MN, WI, & IA 910–915
Mississippi River between Missouri River and Minneapolis, IL 893
Mississippi River between Missouri River and Minneapolis, MN, AR 208
Mississippi River between Ohio & Missouri Rivers, MO 92–97, 206
Mississippi River between the Ohio and Missouri Rivers, MO & IL 14, 43
Mississippi River Levees, AR, IL, KY, LA, MS, MO, & TN 28, 44, 231–242, 363
Mississippi River Outlets at Venice, LA 205
Mississippi River Ship Channel Improvements, LA 5, 42, 48
Mississippi River Ship Channel, Gulf to Baton Rouge, LA 14, 43, 80–81

Page
Mississippi River-Gulf Outlet, LA 13, 43
Mississippi River, Baton Rouge to Gulf of Mexico, LA 204
Mississippi River, Lock and Dam 24, IL & MO 21
Mississippi River, Lock and Dam 24, IL & MO 21
Mississippi-Louisiana Estuarine Areas, MS & LA 316–321
Missouri National Recreational River, NE & SD 377, 419–424
Missouri River—Kenslers Bend, NE to Sioux City, IA 456
Missouri River Fish and Wildlife Mitigation, IA, NE, KS, & MO 376, 382, 425–428
Missouri River Levee System Units L455 and R460–471, MO & KS 374, 382
Missouri River Levee System, IA, NE, KS, & MO 376, 429–439
Missouri River Levee System, Units L455 and R460–471, MO & KS 395–396
Missouri River Master Water Control Manual, NE, IA, KS, MO, MT, & ND 459
Missouri River, Sioux City, Iowa to the Mouth, IA, NE, KS, & MO 445
Mobile Harbor, AL 1433
Mojave River, Reservoir, CA 1676
Molly Ann's Brook, Haledon, Prospect Park and Patterson, NJ 636–640
Molly Ann's Brook, NJ 509
Monitoring of Coastal Navigation Projects 2043–2045
Monongahela River, PA 1179
Monroe Harbor, MI 873
Monroe Lake, MN 1182
Montgomery Point Lock and Dam, AR 1749–1754, 2116
Moorefield, WV 667–671
Morehead City Harbor, NC 1441
Morganza, LA, to the Gulf of Mexico, LA 24, 44, 217
Moriches Inlet, NY 696
Mosquito Creek Lake, OH 1187
Moss Landing Harbor, CA 1669
Mouth of Colorado River, TX 1876
Mouth of Yazoo River, MS 206
Mt. Morris Lake, NY 898
Mt. St. Helens, WA 1033
Mud Mountain Dam Safety, WA 919
Mud Mountain Dam, WA 1031
Murderkill River, DE 686
Murrells Inlet, SC 1444
Muscatine Island, IA 732, 802–806
Muskegon Harbor, MI 873
Muskingum River Lakes, OH 1187
Myrtle Beach, SC 1246, 1362–1367
Nansemond River Basin, Suffolk, VA 507, 560–561
Napa River, CA 1524–1526, 1669
Napa River, Salt Marsh Restoration, CA 1500–1501
Narrows of Lake Champlain, VT 699
Nassau County, FL 1283
National Dam Safety Program 2052
National Dredging Needs Study of Ports and Harbors 1934–1935
National Emergency Preparedness Program (NEPP) 2059–2061
Navarro Mills Lake, TX 1891
Neabsco Creek, VA 702
Neah Bay, WA 921

Page
Neches River and Tributaries Saltwater Barrier, TX 1722
New Bedford, Fairhaven & Acushnet Hurricane Barrier, CT 499
New Buffalo Harbor, MI 873
New Hogan Lake, CA 1677
New Jersey Intracoastal Waterway, NJ 693
New Madrid Harbor, MO 207
New Melones Lake, CA 1680
New Orleans to Venice, LA 18, 43, 159–167
New Pass, FL 1436
New River Inlet, NC 1441
New Topsail Inlet and Connecting Channels, NC 1442
New York and New Jersey Channels, NY 697
New York Harbor Collection and Removal of Drift, NY & NJ 585–590
New York Harbor Drift Removal, NY & NJ 720
New York Harbor, NY 697
New York Harbor, NY & NJ 719
Newark Bay, Hackensack, & Passaic Rivers, NJ 692
Newport Bay Harbor, CA 1501–1502, 1669
Nimrod Lake, AR 1880
Ninilchik Harbor, AK 1020
Nolin Lake, KY 1184
Nome Harbor, AK 932–933, 1020
Nonconnah Creek, TN & MS 36, 44, 349–355
Norfolk Harbor and Channels (Deepening), VA 591–597
Norfolk Harbor, VA 702, 719
Norfork Lake, AR 1897
North Branch of Kokosing River Lake, OH 1188
North Branch Potomac River Environmental Restoration, WV,
MD & PA 536–537
North Branch, Chicago River, IL 900
North Fork of Pound River Lake 1192
North Hartland Lake, VT 497
North Las Vegas, NV 1469–1470
North San Gabriel Dam and Lake Georgetown, TX 1891
North Springfield Lake, VT 497
Northeast River, MD 689
Northern California Streams, Cache Creek Environmental
Restoration, CA 1502–1503
Northern California Streams, Middle Creek, CA 1503–1504
Northern California Streams, Sacramento River Fish Mitigation, CA 1504–1505
Northern California Streams, Winters and Vicinity, CA 1478
Northern California Streams, Yuba River Basin, CA 1479
Northfield Brook Lake, CT 493
Northwest El Paso, TX 1699
Noyo River and Harbor, CA 1669
Nutwood Drainage and Levee District, IL 10, 42, 63
Oahe Dam—Lake Oahe, SD 460
Oakland Harbor, CA 1461, 1537–1542, 1670
Ocean City Harbor & Inlet & Sinepuxent Bay, MD 689
Ocean City, MD & Vicinity 519–520
Oceanside Harbor, CA 1670
Oconto Harbor, WI 886
O'Hare Reservoir, IL 731, 787–790
Ohio River Locks and Dams, KY 1177–1178

Page
Ohio River Main Stem Systems Study, KY, IL, IN, PA, WV, & OH 1070–1071
Ohio River Main Stem Systems Study, KY, IL, & IN 1050
Ohio River Open Channel Work, KY 1178
Okatibbee Lake, MS 1449
Okeechobee Waterway, FL 1447
Oklawaha River, FL 1447
Old Hickory Lock and Dam, TN 1201
Old River, LA 367
Olmsted Locks and Dam, IL & KY 1057, 1106–1110, 2116
Olympia Harbor, WA 1025
Onondaga Lake, NY 727, 745
Ontonagon Harbor, MI 874
Oologah Lake, OK 1886
Operations and Maintenance Business Information Link (OMBIL)—Corpswide 2091–2092
Operations Technical Support (OTS) Program 2062–2063
Optima Lake, OK 1886
Orleans Parish, LA 8, 42, 56
Orwell Lake, MN 897
Osceola Harbor, AR 202
Oswego Harbor, NY 881
Otter Brook Lake, NH 497
Ouachita and Black Rivers, AR & LA 208
Ozark-Jeta Taylor Lock and Dam, AR 1898
O.C. Fisher Dam and Lake, TX 1891
Paint Creek Lake, OH 1188
Painted Rock Dam, AZ 1674
Paintsville Lake, KY 1185
Pajaro River at Watsonville, CA 1526–1527
Palm Beach County, FL 1340–1344
Palm Beach Harbor, FL 1436
Pamlico and Tar Rivers, NC 1442
Panama City Harbor, FL 1436
Papillion Creek and Tributaries Lakes, NE 453
Parker Creek, VA 703
Parrotts Creek, VA 703
Pascagoula Harbor, MS 1439
Pat Mayse Lake, TX 1891
Patoka Lake, IN 1182
Patuxent River Water Resources, MD 527
Pearl River, MS & LA 209
Pearson—Skubitz Big Hill Lake, KS 1882
Pecan Bayou, Brownwood, TX 1705
Peer Review Program 2055
Peninsula Beach, CA 1494
Pensacola Harbor, FL 1436
Pensacola Reservoir—Lake O' the Cherokees, OK 1886
Pentwater Harbor, MI 874
Perdido Pass Channel, AL 1433
Perry Creek, IA 377, 382, 440–444
Perry Creek, KS 450
Petersburg, WV 508, 672–676
Petoskey Harbor, MI 874
Philpot Lake, VA 1456

Page
Pillar Point Harbor, CA 1471–1472
Pine and Mathews Canyons Lakes, NV 1678
Pine Creek Lake, OK 1887
Pine Flat Lake, CA 1677
Pine River Dam, Cross Lake, MN 764–767
Pine River (Dam Safety), MN 730
Pinellas County, FL 1345–1353
Pipestem Lake, ND 454
Plainview, Brazos River Basin, TX 1713–1714
Point Chehalis, WA 921
Point Lookout Harbor, MI 874
Polly River, SC 1444
Pomme de Terre Lake, MO 452
Pomono Lake, KS 450
Ponce de Leon Inlet, FL 1259, 1436
Poplar Island, MD 681–684
Port Austin Harbor, MI 887
Port Everglades Harbor, FL 1437
Port Hueneme Harbor, CA 1670
Port Hueneme, CA 1472–1473
Port of Long Beach (Deepening), CA 1519–1520
Port Orford, OR 1022
Port Royal Harbor, SC 1444
Port Sanilac Harbor, MI 875
Port Washington Harbor, WI 887
Port Wing Harbor, WI 887
Portage, WI 733, 828–832
Portsmouth Harbor, OH 1175
Portugues and Bucana Rivers, PR 1246, 1384–1391
Potomac River at Alexandria, VA 703
Potomac River below Washington, DC 687
Prado Basin Water Supply, CA 1505–1506
Precipitation Studies (National Weather Service 1994–1948
Presque Isle Harbor, MI 876
Presque Isle Peninsula, PA 730, 771–775
Protor Lake, TX 1892
Project Modification for Improvement of the Environment (Section 1135, PL 99–662, as amended) 2033
Prompton Lake, PA 711
Protage Lake Harbor, MI 875
Provo and Vicinity, UT 1492–1493
Puget Sound and Its Tributary Waters, WA 1025
Puget Sound Confined Disposal Site(s) 939–940
Punxsutawney, PA 1196
Quillayute River, WA 922, 1026
Ramapo River at Oakland, NJ 641–645
Ranco Palos Verdes, CA 1479
Raritan Bay and Sandy Hook Bay, Cliffwood Beach, NJ 548
Raritan Bay and Sandy Hook Bay, NJ 546–547
Raritan River Basin, Green Brook Sub-Basin, NJ 506, 578–579
Rathbun Lake, IA 448
Ray Roberts Lake, TX 1831–1836, 1892
Raystown Lake, PA 711
Recurring ADPE Requirements 2097

Page
Red Lake Reservoir, MN 897
Red River Basin Chloride Control, TX & OK 1837–1841
Red River Waterway—Mississippi River to Shreveport, LA 15, 43,104–128, 209
Red Rock Dam, Lake Red Rock, IA 896
Reelfoot Lake, TN & KY 25
Reelfoot, TN 44
Reliability Models Program for Major Rehabilitation 2067
Remote Sensing Systems Support 1969–1971
Removal of Aquatic Growth 1457
Removal of Drift & Debris from the Potomac and Anacostia River, DC 720
Rend Lake, IL 16, 43, 129–133, 211
Renovation—Division Laboratory—South Pacific Division 2083–2084
Repair, Evaluation, Maintenance, and Rehabilitation Research Program (REMR II) 2046–2049
Replacement for Patrolboat—St. Louis District 2089–2090
Replacement Survey Boat—New York District 2090–2091
Replacement Survey Boat—Norfolk District 2090
Replacement Towboat—Mobile District 2089
Replacement Work Layout Barge—Rock Island District 2086–2087
Reservoirs at Headwaters of Mississippi River, MN 894
Richard B. Russell Dam and Lake, GA 1455
Richard B. Russell Dam and Lake, GA & SC 1246, 1408–1414
Richmond Harbor, CA 1542–1546, 1670
Ridgely, WV 714, 715
Rillito River, AZ 1461, 1565–1570
Rio Chama, Abiquiu Dam to Espanola, NM 1709
Rio de Flag, AZ 1477
Rio de la Plata, PR 1392–1396
Rio Grande de Loiza, PR 1245, 1290–1294
Rio Grande Floodway, San Acacia to Bosque del Apache, NM 1778–1782
Rio Guanajibo, PR 1269–1270
Rio Nigua at Salinas, PR 1281–1282
Rio Puerto Nuevo, PR 1246–1397–1401
Rio Salado, Salt River, AZ 1495–1496
Rish Analysis for Water Resources Investments 2013–2015
River Confluence Ice Program 2050–2051
Roanoke River Upper Basin, VA, Headwaters Area 1402–1407
Roanoke River, NC 1442
Robert C. Byrd Locks and Dam, WV & OH 1058, 1125–1129, 2116
Robert F. Henry Lock and Dam—R.E. "Bob" Woodruff Lake, AL 1453
Robert S. Kerr Lock and Dam and Reservoir, OK 1899
Rochester Harbor, NY 881
Rogue River, OR 1022
Rollinson Channel, NC 1442
Rondout Harbor, NY 697
Rosedale Harbor, MS 206
Roseville, OH 1195
Rouge River, MI 876
Rouge River Lake, KY 1185
Roughans Point, Revere, MA 465, 469, 479–483
Rudee Inlet, VA 703
Russian River, Ecosystem Restoration, CA 1506–1507
R.D. Bailey Lake, WV 1193
Sabine-Neches Waterway, TX 1876

Page
Sacramento River Bank Protection Project, CA 1614–1625
Sacramento River Flood Control Project (Glenn-Colusa Irrigation District), CA 1626–1630
Sacramento River (Debris Control), CA 1671
Sacramento River (Shallow Draft Channel), CA 1671
Sacramento River, CA 1670
Sacramento-San Joaquin Delta, CA 1507–1508
Sacramento-San Joaquin Delta, Little Holland Tract, CA 1509
Sacramento-San Joaquin Delta, Western Delta Islands, CA 1510–1511
Saginaw River, MI 876
Salamonie Lake, IN 1182
Salina, KS 373, 382, 392
Salt Creek and Tributaries, NE 453
Sam Rayburn Dam and Reservoir, TX 1900
Sam Rayburn Dam and Reservoir, TX (Dam Safety) 1846–1850
San Antonio Channel Improvement, TX 1811–1815
San Antonio Creek, CA 1480–1481
San Diego Harbor, CA 1671
San Diego River-Mission Bay, CA 1671
San Francisco Bay Long Term Management Strategy, CA 1671
San Francisco Bay to Stockton (John F. Baldwin and Stockton Ship Channels), CA 1547–1552
San Francisco Bay-Delta Model Structure, CA 1671
San Francisco Harbor, CA 1672
San Joaquin River Basin, Arroyo Pasajero, CA 1481–1482
San Joaquin River Basin, Pine Flat Dam, Fish and Wildlife Habitat Restoration 1511–1512
San Joaquin River Basin, South Sacramento County Streams, CA 1483–1484
San Joaquin River Basin, Stockton Metropolitan Area, CA 1484–1485
San Joaquin River Basin, Tule River, CA 1485–1486
San Joaquin River, CA 1672
San Juan and Aliso Creeks Watershed Management, CA 1512–1513
San Juan Harbor, PR 1278
San Lorenzo River, CA 1461
San Lorenzo River, CA 1631–1636
San Pablo Bay and Mare Island Strait, CA 1672
San Rafael Creek, CA 1672
Sand Point Harbor, AK 933–934
Sandbridge, Virginia Beach, VA 575
Sandusky Harbor, OH 883
Sandy Hook to Barnegat Inlet, NJ 508, 615–620
Santa Ana River Basin, CA 1677
Santa Ana River Mainstem, CA 1636–1644
Santa Ana River, CA 1461
Santa Barbara County Streams, Lower Mission Creek, CA 1486–1487
Santa Barbara Harbor, CA 1672
Santa Paula Creek, CA 1645–1649
Santa Rosa Dam & Lake, NM 1884
Santee, Cooper, and Congaree Rivers, SC 1266–1267
Sardis Lake, OK 1887
Saugatuck Harbor, MI 877
Savannah Harbor Expansion, GA 1261
Savannah Harbor, GA 1438
Savannah River Below Augusta, GA 1438

Page
Saw Mill Run, Pittsburgh, PA 1057, 1101–1105
Saxon Harbor, WI 887
Saylorville Lake, IA 897
Scarborough River, ME 489
Scheduled Reservoir Operation, AL 1450
Schuylkill River Basin, Schuylkill Haven Area, PA 534–535
Schuylkill River, PA 698
Scientific and Technical Information Centers 1957–1960
Seattle Harbor, WA 1026
Sebewaing Harbor, MI 877
Seven Oaks and Prado Dams Water Conservation, CA 1487–1488
Seven Oaks Dam Water Conservation, CA 1527–1528
Seward Harbor, AK 935–936
Shark River, NJ 693
Sheboygan Harbor, WI 887
Shenango River Lake, PA 1190
Sheyenne River, NY 733, 822–827
Shinnecock Inlet, NY 698
Shipyard River, SC 1444
Shoal Harbor Compton Creek, NJ 693
Sims Bayou, Houston, TX 1816–1821
Sitka Harbor, AK 919
Siuslaw River, OR 1023
Skagit River, WA 918, 941–942
Skiatook Lake OK 1887
Skipanon Channel, OR 1023
Smith Island Environmental Restoration & Protection, MD 558–559
Smithville Lake, MO 452
Somerville Lake, TX 1892
Souris River Basin, ND 733, 833–839
Souris River, ND 899
South Haven Harbor, MI 877
South Main Channel, TX 1732–1733
South River, Raritan River Basin, NJ 528–529
Southeast Louisiana, LA 18, 43, 168–172
Southeast MO Port, MO 207
Stamford Hurricane Barrier, CT 499
Ste. Genevieve, MO 20, 43, 188–193
Stillaguamish River, WA 950–951, 1033
Stillhouse Hollow Dam, TX 1892
Stillwater Lake, PA 711
Stockton Lake, MO 458
Stonewall Jackson Lake, WV 1193
Stream Gaging (U.S. Geological Survey) 1942–1943
Stumpy Point Bay, NC 1442
Sturgeon Bay Harbor & Lake Michigan Ship Canal, WI 888
Sturgeon Point Small Boat Harbor, NY 882
St. Augustine Harbor, FL 1437
St. Clair River, MI 877
St. Francis Basin, AR & MO 31, 44, 283–291, 365
St. Francis River & Tributaries, AR 365
St. Joseph Harbor, MI 878
St. Lucie Inlet, FL 1273, 1437
St. Marys River 904

Page
St. Paul Harbor Channel, AK 959–960
St. Petersburg Harbor, FL 1437
St. Tammany Parish, LA 8, 42, 57
Success Lake CA 1677
Suisun Bay Channel, CA 1672
Summersville Lake, WV 1193
Surfside-Sunset and Newport Beach, (Orange County), CA 1553–1559
Surry Mountain Lake, NH 497
Surveying and Remote Sensing 2010–2012
Susquehanna River Basin Water Management, NY, PA, & MD 530–531
Sutton Lake, WV 1194
Swinomish Channel, WA 1026
Swope Park Industrial Area, Kansas City, MO 372, 382, 385
Table Rock Lake, MO 1898
Table Rock Lake, MO & AR (Dam Safety) 1861–1865
Tacoma, Puyallup River, WA 1033
Tampa Harbor, Big Bend Channel, FL 1274
Tampa Harbor, FL 1437
Tangipahoa, LA 205
Taylorsville Lake, KY 1185
Tender Kankakee Replacement—Rock Island District 2085–2086
Tender Monmouth Replacement—Rock Island District 2086
Tenkiller Ferry Lake, OK 1899
Tenkiller Ferry Lake, OK (Dam Safety) 1866–1869
Tennessee River, TN 1179
Tennessee Tombigbee Waterway Wildlife Mitigation, AL & MS 1245, 1309–1312
Tennessee-Tombigbee Waterway, AL & MS 1447
Tensas Basin, AR & LA 32, 44, 292–302, 365
Terminus Dam (Lake Kaweah), CA 1677
Texas City Ship Channel, TX 1876
The Dalles Lock and Dam, WA 1039
The Dalles Powerhouse (Units 1014), WA & OR 967–970
The Dalles Powerhouse, OR & WA 921
Thimble Shoal Channel, A 704
Thomaston Dam, CT 493
Thurmond Lake Powerhouse, GA & SC 1428–1431
Tilghman Island Harbor, MD 689
Tilamook Bay and Bar, OR 1023
Tioga-Hammond Lakes, PA 711
Tionesta Lake, PA 1190
Toledo Harbor, OH 735, 884
Tom Jenkins Dam, OH 1188
Topeka, KS 374, 382, 393–394
Toronto Lake, KS 1882
Towboat Grand Tower Replacement—St. Louis District 2084
Towboat Replacement—Little Rock District 2088–2089
Town Bluff Dam, B.A. Steinhagen Lake and Robert Douglass Willis Hydro-
power Project, TX 1900
Town Brook, Quincy and Braintree, MA 465, 469, 484–488
Town Creek, SC 1445
Townsends Inset to ICape May Inlet, NJ 549–550
Townshend Lake, VT 498
Transportation Systems 1966–1968
Trinidad Lake, CO 1880

Page
Trinity River and Tributaries, TX 1876
Tropicana and Flamingo Washes, NV 1461, 1662–1667
Truckee Meadows, NV 1491–1492
Tucson Drainage Area, AZ 1520–1521
Tug Palmyra and Launch Paulsboro Replacement—Philadelphia District 2085
Tully Lake, MA 495
Turkey Creek Basin, KS & MO 372, 375, 382, 384, 397–398
Tuttle Creek Lake, KS 451
Twitch Cove & Big Thorofare, MD 689
Two Harbors, MN 880
Two Rivers Dam, NM 1884
Two Rivers Dam, NM (Dam Safety) 1851–1855
Two Rivers Harbor, WI 888
Tygart Lake, WV 1180
Tygart Valley River Basin, Grassy Run Environmental Restoration, WV 1053, 1082
Tylers Beach, VA 704
Umkpqua River, OR 1023
Union City Lake, PA 1191
Union Lake, MO 212
Union Village Dam, VT 498
Upper Guadalupe River, CA 1488–1489
Upper Mississippi and Illinois Navigation Study 727
Upper Mississippi River System Environmental Management Program, IL, IA, MN, MO, & WI 729, 755–763
Upper Penitencia Creek, CA 1489–1490
Upper Sacramento Area Levee Reconstruction, CA 1461, 1650–1655
Upper Trinity River Basin, TX 1706–1707
Ventura and Santa Barbara County Shoreline, CA 1494–1495
Ventura Harbor, CA 1673
Vicksburg Harbor, MS 364
Video Teleconferencing—Corpswide 2092–2093
Virginia Beach, VA 631–636
Wabash River Basin (Middle Reaches), IN 1053
Wasbash River Basin (Middle Reaches), IN & IL 1083
Waco Lake, TX 1892
Waco Lake, TX (Dam Safety) 1856–1860
Wailupe Stream Flood Control Study, Oahu, HI 1204, 1216–1217
Walla Walla River Watershed, OR 946–947
Wallace Lake, LA 212
Wallisville Lake TX 1893
Walter F. George Lock and Dam, AL 1453
Walter F. George Lock and Dam, GA 1455
Walter F. George Power Plant, AL & GA 1245
Walter F. George Powerhouse, FL 1295–1299
Wappapello Lake, MO 212, 365
Washington Harbor, DC 687
Water Control Data Systems (WCDS) 2092, 2095–2096
Water Resources Management 2005–2009
Waterway Connecting Pamlico Sount w/Beaufort Harbor, NC 1442
Waterway Connecting Swanquarter Bay with Deep Bay, NC 1443
Waterway from Empire, LA to the Gulf of Mexico, LA 205
Waterway from IWW to B. Dulac, LA 205
Waterway on the Coast of Virginia, VA 704

Page
Waterway, Indian River inlet to Rehoboth Bay, DE 686
Waukegan Habor, IL 864
Waurika Lake, OK 1887
Webbers Falls Lock and Dam, OK 1899
West Bank—East of Harvey Canal, LA 12, 42, 66
West Columbus, OH 1059–1140–1144
West Des Moines, IA 732, 807–811
West Fork of Mill Creek Lake, OH 1188
West Hill Dam, MA 495
West Sacramento, CA 1656–1660
West Shore—Lake Pontchartrain, LA 9, 42, 58
West Tennessee Tributaries, TN 36–38, 44, 356–362
West Thompson Lake, CT 493
Westchester Creek, NY 698
Westville Lake, MA 495
Westwego to Harvey Canal, LA 19, 43, 173–178
White Lake Harbor, MI 878
White River Backwater, AR 365
White River, AR 202
Whitefish Point Harbor, MI 878
Whiteman's Creek, AR 33, 44, 303–307
Whitewater River Basin, CA 1490–1491
Whitlow Ranch Dam, AZ 1674
Whitney Lake, TX 1900
Whitney Point Lake, NY 707
Wicomico River, MD 690
Willamette River at Willamette Falls, OR 1028
Willamette River Basin Bank Protection, OR 1033
Willamette River Basin Review, OR 954–955
Willamette River Studies, OR 918
Willamette River Temperature Control, OR 961
Willapa River and Harbor, WA 1027
William H. Harsha Lake, OH 1189
Willo Creek Lake, OR 1030
Wilmington Harbor—Northeast Cape Fear River, NC 1277
Wilmington Harbor, DE 686
Wilmington Harbor, NC 1443
Wilson Lake, KS 374, 382, 394, 451
Winfield Lock Replacement, Hazardous Waste Removal, WV 1064
Winfield Locks and Dam, Kanawha River, WV 1058
Winfield Locks and Dam, WV 1130–1134, 2116
Winfield, KS 1763–1766
Winter Floods of 1996–1996 924–925
Winters and Vicinity, CA 1528–1529
Wister Lake, OK 1887
Withlacoochee River, FL 1438
Wolf Creek Dam—Lake Cumberland 1199
Wolf River Harbor, TN 207
Wolf River, Memphis, TN 25, 44, 220
Wood River, Grand Island, NE 378, 382, 405–410
Woodcock Creek Lake, PA 1191
Wrangell Harbor, AK 936–937
Wright Patman Dam and Lake, TX 1893
Wyoming Valley (Levee Raising), PA 509

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Wyoming Valley, PA 656–660
W. Kerr Scott Dam and Reservoir, NC 1449
Yaquina Bay and Harbor, OR 1023
Yatesville Lake, KY 1185
Yazoo Basin, MS 35, 44, 206, 322–348, 366–367
Yellow Bend Port, AR 202
Yonkers Shoreline, NY 554
York Harbor, ME 489
York Indian Rock Dam, PA 712
Youghiogheny River Lake Storage Reallocation, PA & MD 1052, 1080
Youghiogheny River Lake, PA 1191
Yuba River, CA 1673
Zebra Mussel Control Research Program 2020–2023

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